INDIAN RAILWAY FINANCE

(1947-48 to 1960-61)

Thesis Submitted for
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN ECONOMICS IN THE FACULTY OF ARTS.

By Jagdish Prasad Gupta
M. A.

DEPARTMENT OF ECONOMICS
ALIGARH MUSLIM UNIVERSITY
ALIGARH.
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PREFACE

The present attempt is an enquiry into the growth of the Indian Railway Finance from 1947-48 to 1960-61. Its main purpose is to examine the control of finances of public utility service and also to judge economies of large scale operation. Being a public utility service the railway finances do not work on the basis of maximising profit. It has been found that the rise in traffic does not lead to an increase in cost; rather it results in lowering of the proportionate cost. It is however, difficult to allocate expenditure to individual services performed by the railways because they perform several services simultaneously and are therefore subject to joint cost. The railways are listed in the Union List as a public utility service under Article 246 of the Indian Constitution; and therefore, these services are controlled by the State.

The main sources of information of the study is the Railway Financial Statement. These statements provide a considerable material which has not been analysed comprehensively by any professional economist. In this

thesis an attempt has been made to fill in this lacuna. It is hoped that this analysis would be useful both for understanding the functionings of the railway finances as well as its policy implications. The thesis has been divided into eight chapters. Chapter one and two are of a general nature and provide an outline of the economies of railways finances from the beginning down to 1947. In Chapter two the questions regarding the railway charging rate and fare structure have also been discussed in considerable detail. Chapter three deals with the growth of income and traffic both for goods and passangers. In Chapter four the question of railway expenditure has been discussed under the heads of capital and working expenditure. Chapter five deals with the growth of net earnings. In the following chapter certain interrelations of railway income and expenditure have been worked out on the basis of regression method. Chapter seven deals with the income distribution of the railway staff on the class basis, the wage rates and the differentiation between various classes. The last Chapter deals with the effect of the development of road transport on the railway finances.

I take this opportunity of expressing my deep sense of gratitude to my supervisors Professors Mohd. Shabbir Khan and Abu Salim. Professor A. Salim who supervised my research

work till he left Aligarh to join the National Council of Applied Economic Research, was responsible for supervising most of the work in early stages. He gave me all encouragement and guidance in collecting the data and analysing them for purposes of analysis. Professor Mohd.Shabbir Khan advised me in final stages of the preparation of my thesis. Both of my supervisors have been a source of great inspiration and encouragement to me. Dr. Mahfooz Ahmad at present Reader in Economics at the University of Delhi very kindly went through the earlier draft of thesis and made many valuable suggestions. I am deeply grateful to him.

My thanks are also due to Professor Q.H. Farooquee,Dean, Faculty of Commerce, Aligarh Muslim University,Aligarh for providing me facilities of work in his seminar library. Professor L.A. Natasan former Economic Adviser, Ministry of Railway and at present Consultant National Council of Applied Economic Research, New Delhi gave me a number of valuable advices. My thanks are due to Dr. R.K. Saggar, Junior Economist, National Council of Applied Economic Research and Mr. Banerjee, Superintendent Tarrif Section of I.R.C.A., New Delhi for providing facilities of work in their libraries.

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C_O_N_T_E_N_T_S

CHAPTER I

ECONOMICS OF RAILWAY FINANCE AND ITS SIGNIFICANCE

The study of Railway Finance concerns with the railway income and expenditure and net earnings. As for the scope of each component, railway gross income includes earnings from passangers traffic, earnings from goods traffic and earning from miscellaneous resources. The earnings from passangers and goods traffic is clear from its very nature but the earnings from miscellaneous resources includes income from railway electric telegraph services, railway schools, penalties charged from ticketless travellers, demurrage and warfage charges on goods traffic and the earnings by disposing off the non-delivered goods etc.

Railway's expenditure is of two type, namely, fixed expenditure and variable expenditure. The former is also known as Capital or Constant expenditure, whereas the later is known as Working or Current expenditure. However, each type of expenditure has a number of sub-divisions:(a) Capital expenditure: It is subdivided into two (i) Expenditure on railroad proper - this includes expenditure incurred on surveying the line, law charges, compensation paid for acquiring the land and its leveling. These expenses are irrecoverable in

nature, for instance; if the line proves a failure these expenses will be a waste and cannot be recovered. (ii) Expenditure on rolling stock. This includes, railway engines, wagons, coaches, signal tracks and the allied materials. Though these expenses are fixed in nature, yet can be recovered after incurring considerable loss. (b) Working expenses: It is subdivided into: (i) General expenses-there are the expenses made on the general administration and thus include the salaries paid to the directors, auditors, general managers, secretary, accontants and other office charges. (ii) Maintenance of ways and works - this includes (a) salaries and office expenses and general superintendence charges and thus are like the general e expenses. (b) repair and maintenance of roads, bridges, signals and other ways. (c) repair of stations' buildings. This depends upon the damages caused due to wind and weather and by traffic too. (d) maintenance of permanent ways. In this regard it is said that two-third of such expenditure varies with the traffic while one-third is independent of it.[1] (iii) Maintenance of rolling stock - includes provision of

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1. Ripley, 'Railroad', p. 55.

obsolescence and provisions for wear and tear. These expenses vary with the traffic, i.e., the heavier the traffic the more wear and tear of rolling stock. (iv) Traffic expenses include cost of labour, ie., salaries of station staff and other employees engaged for handling the traffic and the cost of coal consumed. These expenses hardly vary with the increase in traffic. Hence, over all it is found that with the rise in traffic, expenses on railway operation do not increase in direct proportion with the traffic.

Prior to the separation of railway finance in 1924 Railway's profit was shared among the shareholders of the companies.[1] However, since the separation of railway finance from the general finance, railways' profit shared among public exchequer and Railways own development. Public exchequer charges interest on the capital invested from the general fund and a share as contribution to it. What remains as Railways share is distributed among Depreciation Reserve Fund, Railway Reserve Fund and Railway Development Fund for keeping the amount safe for future railway needs. This distribution is governed by the convention resolutions passed from time to time by the Legislature or by the Parliament.[2]

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1. Indian Railways:One Hundred Years 1853-1953,Govt.of India, 1957, p. 39.
2. Railway Separation Convention Resolutions: Appendix I.

RAILWAY'S CHARACTERISTICS

The important characteristics of railways are that their operation is subject to the economies of large-scale production. In other words, with the rise in traffic the expenses increase less than proportionately. As a matter of fact, the direct comparison of expenses with volume of traffic is difficult owing to the variety of traffic handled by the railways, nor is there any complete satisfactory way of allocating the many common costs incurred in handling the various types of traffic. Here the cost has been estimated as if X cost to deal one lakh units of traffic then 5 lakhs units will not cost 5 X but 3 X. Because one half of the total expenses are fixed in nature and other half varies with the traffic.[1] This concludes that railways are subject to the law of increasing return.

Moreover, it is also argued that railways are the case of joint products and the cost for all types of services are incurred jointly and simultaneously. It is impossible to

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1. Acworth has given an equation to prove the above contention as

$$1/2\ X + (1/2\ X\ X\ 5) = 3X.$$

'Elements of Railway Economics, by Sir W.M.Acworth, p.55.

apportionate the expenditure done over a particular type of service. For example, a single railway plant is used after for both passanger and goods traffic and even for up and down journeys. Thus the operation of a single freight train results in total costs which cannot precisely be distributed among the various commodities transported. Therefore, in such conditions the operation of railways services are known subject to joint cost. The theory of railway joint cost has been discussed by the eminent economists like Professor Taussing, A.C. Pigou, J.S.Mill, Marshall, Sir W.M. Acworth and others and all are agreed that the railway operation is subject to joint cost or different products are the result of the same operation.[1]

The railways by their very nature are public utility services,[2] because they have to carry traffic as it is offered to them. In handling such traffic the basic consideration is not to maximise profit but to minimise costs of operation. And as the guiding principle for such operation is to provide utility to public, fixation of fares and freight are guided by such consideration as the ability to pay

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1. For details please refer:
   1) 'Principles of Economics,' Taussing, Vol.II(1924)pp.395-405.
   2) 'Elements of Railway Economics' Sir W.M.Acworth, p.321.
   3) 'Principles of Political Economy' J.S.Mill, p. 570.
   4) 'Economics of Welfare', A.C.Pigou, pp. 246-67.
   5) 'Principles of Economics', A. Marshall, p. 388.
   6) 'Railroad' Riplay, p. 67.
   7) 'Trade and Industry' A. Marshall, p. 93.
2. 'Though the division of services as public utility, depends upon the changing economic conditions of the State, i.e., from Capitalist economy to Socialist economy, lists the services as public utility. However, in India, the inclusion of railways in Union List under article 246 of the Constitution, categories as the Railway services as public utility service'.Glaeser, M.G'Outline of Public Utility Service', p. 179.

by the consumers or the value of service done to producers and also those considerations with long term economic objects such as are adopted by the nation for the achievement of rapid economic growth. The best type of consideration have now taken guidance over the other especially in the less developed countries.

ORGANISATION OF RAILWAY FINANCE IN INDIA

Prior to the separation convention resolution of 1924 complete control of railway finance was in the hands of the then existing companies working in India and the Government of India was a poor spectator, because the then existing railway companies were free to tutilise the resources and they were deriving huge profits:

> 'The extent to which the state and the taxpayer lost in these transactions is illustrated by the very material gain which accrued to the shareholders and the companies. The figures for 1891-92 of the Great Indian Peninsula and the Bombay Baroda Railways, shows that the shares of surplus profits of the shareholders of the former, in that year was Rs.51.87 lakhs and for the latter Rs.17.98 lakhs besides the contribution of provident fund'.[1]

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1. Indian Railways: One Hundred Years 1853-1953,p.21.

And in case of any deficit, however, it was made good from: (1) surplus revenue of the Government of India, if any; (2) by raising rupee loan in India and sterling in England; (3) by saving bank deposits; (4) by fifty per cent profits of rupee coinage and; (5) by famine insurance fund established on the recommendation of Famine Commission 1880.[1]

Under such circumstances, Indian public opinion represented in Imperial Legislative Council unanimously urged in repeated resolutions moved in 1914, 1915,1917 and 1918 for the appointment of a committee to enquire into the desirability of adopting direct state management. In response to these demands the East Indian Railway Committee(1920-21) with Sir W. Acworth as chairman, was appointed in November 1920, to go into the whole question of Railway's policy, financial and administrative.[2]

The Committee has in very strong terms, recommended that 'Railways should be managed as a commercial concern and that they should be kept their own accounts, decide what statistics should be maintained. They have also urged the separation of railway finance from the general finance as it

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1. Ibid., p. 22.

2. Ibid., p. 26.

would remove the element of uncertainty in the annual budget estimate caused by the inclusion of railway varying profit depending upon the season and trade conditions'.[1] These recommendations, however, later on supported by the Railway Finance Committee 1921, Railway Retrenchment Committee 1922, appointed by the Government of India.[2]

The recommendations of the Acworth Committee was accepted by the Government of India and a resolution was adopted by the Indian Legislative Assembly on September 20, 1924, to separate the railway budget from general finance. This resolution is known as 'The Railway's Separation Convention Resolution 1924'.

The most notable feature of the separation convention resolution 1924 was as under: First the annual contribution from railways to general revenue was calculated with reference to capital-at-charge of the railway system and the profit earned by it in each year; secondly, two funds were established, namely Railway Reserve Fund and Depreciation Reserve Fund. These arrangements were made simply for the reason that Government of

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1. Ibid., p. 28.

2. Ibid., p. 33.

India has raised the money for railway construction on its credit and thus it was reasonable that Government should get fair return on that capital so raised. Lastly, the creation of the funds was to utilise the surplus money in time of any future urgency.

The actual results of the working of the convention showed that in years of financial prosperity it had not only operated to the detriment of the interest of the railways themselves, but also produced irregular results of securing substantial contributions to the general revenue, while in the years of financial depression when railways were in need of financial assistance, it denies except by paying interest charges.

Later on, at them motion of the Legislative Assembly on September 21, 1928, a Committee of Legislature was appointed to review the arrangements of the convention resolution after first three years. But the Committee could not persue any enquiry in view of the constitutional changes and the economic depression set in from 1929-39. During this period contribution to general revenue and the depreciation reserve fund was altogether ceased, whereas loan had been taken from the depreciation reserve fund to pay the interest charges.

This loan and the undischarged liability to general revenue, however, cleared in 1942-43 from the wartime surplus revenue.

On March 2, 1943 a resolution in the Legislative Assembly was again passed,[1] to abandon the basis of contribution to general revenue as laid in the resolution of 1924 and to provide the distribution of the surplus revenue, if any, after paying any outstanding loan from depreciation reserve fund, between railway reserve and the general revenue at the ratio of 1:5; whereas in case of any loss on strategic lines, it be recovered from general revenue; the basis of this resolution shall remain binding till the adoption of new convention in future, but the distribution of railway surplus was to be decided each year according to the needs of railways and general revenue.

In persuance of the Legislative Assembly a Committee of Legislature was latter on appointed on March 23, 1943 to consider the revision of the convention. But it too found it impossible to forsee the conditions prevailed after war and suggested the postponment of the revision of the convention. Then in 1947, another Committee was appointed by the Legislature which failed to recommend anythin- due to partition disturbances. In this way the arrangements to review the original conditions had to be postpond either for any of the reason sprang at the time

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1. 'Railway Separation Convention Resolution 1943' See Appendix I.

Moreover, as a result of the recommendations of the Railway Convention Committee appointed by the Legislative Assembly on April 4, 1949 to review the working of the Separation Convention 1924, a resolution was again passed by the Parliament on December 21, 1949, suppressing all the previous resolutions on the subject.[1]

Under this resolution a fixed annual dividend on the capital invested therefrom, was guaranteed to the public exchquer as a sole shareholder in it, without being affected by the violent fluctuations caused in the railway working.[2] Secondly, the rules of allocation of expenditure between capital and revenue are liberalised on modern practice. Thirdly, an additional Development Fund was established after merging the existing Betterment Fund for railways. These arrangements were due to: (1) the return given by railways undertaking should be based solely on loan capital independent of railway surpluses, (2) to stop the process of annual addition to the capital structure and introducing the commercial principles of financing the railway stability of railway undertaking.

After the expirty of the term of Convention Resolution 1949, the Railway Convention Committee was again appointed in

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1. Separation Convention Resolution 1949, see Appendix I
2. *Ibid.*

May 1954 to examine: (1) the rate of dividend payable by railway to general revenue, (2) to reallocate railway expenditure between capital and revenue accounts, and (3) the appropriations made to each of the three funds, namely, Depreciation Reserve Fund, Development Fund and Revenue Reserve Fund. On the recommendation of the Committee, the Convention Resolution was revised in 1955, providing thereby: (1) the increase in the contribution to depreciation reserve fund to Rs.55 crores per year for the next five years, (2) development fund to be utilised to meet the expenditure of unremunerative operating improvement works costing more than Rs. 5 crores each and the outlay be utilised to finance the construction of residential quarters for class III and IV staff in addition to the present practice of earmarking Rs. 5 crores per year for provision of amenities to the users of railways, (3) to review the position of railway revenue at the end of next five years by the Parliamentary Committee.

As per this convention resolution railways got two advantages, namely: a saving of Rs.1 crore per year caused due to low rate of dividend on that portion of capital which is assessed to be over capitalised and secondly, railways will not pay anything on the capital invested during the period of construction and upto the end of fifth year of their opening for traffic. In this way the convention resolution have naturally encouraged more new constructions. Latter on, after the

expirty of the term of the convention resolution, parliament had further extended the term till March 31, 1961, by passing another resolution on April 28, 1959.

In this way, railway finance is controlled by the then Legislative Assembly and latter on by the Union Parliament, by passing convention resolutions from time to time.

RAILWAYS CONTRIBUTION TO GENERAL REVENUE

As has been mentioned in the previous pages that railways which were considered to be blood-suckers to the general revenue, have now gradually turned into a milk-cow to it. The direct contribution of railway to general revenue after separation in 1924, was on an average Rs.5.93 crores per year, till 1930. But owing to the depression of 1930's and also by the advent of road competition causing the loss of revenue to the extent of about Rs.4.5 crores per year from passenger and goods traffic,[1] railway revenue both from

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1. Indian Railways: One Hundred Years, 1853-1953,p.15.

passenger and goods services had declined. This results a decline of contribution to general revenue to the extent of Rs.0.82 crores per year, because after meeting all the charges against the net revenue receipt, railways were running in deficit of Rs.5.77 crores per year.[1] However, during the Second World War railway revenue increased both from passenger and goods traffic. This led to wiping away all the arrears due from general revenue and loan borrowed from depreciation reserve fund. The contribution of railways to general revenue increased to Rs. 11.65 crores per year, on an average.

The convention resolution 1948, created an additional liability of Rs.2.35 crores over and above the current and arrear contribution to general revenue.[2] The average payment to general revenue including interest charges a had been Rs.44.38 crores per year from 1945-44 to 1949-50. From 1950-51 till 1954-55, this payment was Rs. 39.85 crores, per year.[3] From 1955-56 till 1960-61, this contribution further increased to Rs. 46.66 crores per year.[4] In this way, through-out the last forty years or so railways have been an important source of revenue to the Government of India.

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1. Railway Board Annual Reports for Respective Years, Vol.I & II.
2. Clause 1, Railway Separation Convention Resolution, 1948, see Appendix I.
3. This decline in contribution was due to fixed charges at 4 per cent levied under convention resolution, 1948.
4. This increase in contribution was due to increase in rate at 4.25 per cent.

Apart from this direct contribution by railways to general revenue, they have also paid considerable revenue indirectly by way of increased land revenue and by levying taxes like terminal tax and passanger fare tax both on fare and freight.

RAILWAY'S CONTRIBUTION FOR PLANNED DEVELOPMENT

Besides these direct and indirect contributions to general revenue, railways had also paid due share for their development under two five years plans. This planning was introduced in 1951 and considerable amount had since then been alloted for railway development under these Five Year Plans both to meet the renewal and replacement of their rolling stock and their current demand. The amount alleted during the First Five Year Plans was Rs.80 crores per year and Rs.180 crores per year under the Second Five Year Plan.[1] In view of the railway's current and renewal and replacement demand for plant

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1. As per allocations under First and Second Five Year Plans.

and rolling stock, the amount was far from sufficient, because most of the rolling stock was over due for renewal and replacement. The following table shows the percentage of averaged rolling stock at the beginning of each plan.

Table No. 1

Percentage of overaged Stock of Total Stock on line

On March 51	Locomotives			Wagons			Coaches		
	B.G.	M.G.	Total	B.G.	M.G.	Total	B.G.	M.G.	Total
1951	23.0	31.0	27.0	15.5	29.4	21.5	29.5	45.0	37.5
1956	32.5	26.0	29.5	16.5	17.2	16.5	24.0	26.4	25.2
1961	16.2	22.5	19.4	6.6	11.9	9.3	10.0	9.5	9.8

Source: Second Five Year Plan, Govt. of India, p. 467.
B.G: Broad Guage, M.G: Metre Guage.

The division of the expenditure under the First Five Year Plan was at the rates of Rs.16 crores per year from the general revenue and Rs.64 crores per year from railways own sources. By the change in the policy under Second Five Year Plan the rates have been changed to Rs.150 crores per year from the general revenue and Rs.50 crores per year from railway's own sources, excluding the contribution paid to the Depreciation Reserve Fund each year.

In actual practice, it is find out that central exchequer has spend Rs.23.38 crores per year instead of Rs. 16 crores per year as envisaged under the First Plan. On the other hand, to meet the railway's own share,Railways have increased the rates and fare for requiring the additional revenue from the traffic and deficiency was met out from the outside borrowing of 5.2 crores dollars from International Bank for Reconstruction andD Development.[1] But overall Rs.86.41 crores per year were spend on railways under First Plan instead of Rs.80 crores per year.[2]

However, under the Second Plan period, central exchequer had spend Rs.109 crores per year and the deficit was met out further by outside borrowings, namely, 23.4 crores dollars from World Bank; 1.05 crores dollars from the United States and 0.45 crores from the United States International Cooperation Administration.[3] Whereas, on the other hand, railways have further enhanced the rates and fare to meet out their own share for planned development. But overall Rs.172 crores per year were spent on railways under the Second Five Year Plan[4], instead of Rs. 180 crores alloted in the Draft Plan.

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1. 'The Economics of Indian Rail Transport, Johnson,J,p.525.
2. Second Five Year Plan, Govt.of India, p. 461.
3. Ibid. p. 524,
4. Third ive Year Plan,Govt.of India, p. 535.

In this way, the emphasis on the development of railways during the plans in India brings out their own importance. It also becomes clear that railways though contribute substantially to the public expenditure depend mainly on the revenue from other sources.

CHAPTER II

RAILWAYS RATES AND FARE STRUCTURE

IMPRACTICAL METHOD OF RATES CHARGING

Though there are two guiding principles, namely, cost of service and value of service, for constructing the railway tariffs, but non can fulfill railway needs in a developing economy. Because after meeting the operating charges, railways also require a fair share for their own development. Therefore, before going to discuss the reasonableness of charges, we must have an idea of these principles.

According to cost of service, principle, charges must be equal to the actual cost of carrying the traffic, because railways being a public utility[1] must render services at a lower price. Though it is good in public interest, but has certain shortcomings from application, point of view. For example, the difficulty arises in ascertaining the cost of traffic[2] when the rates are quoted in advance, because cost is

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1. Refer to footnote No. 2 chapter I, p. 5.
2. Though the cost of unused capacity of the rolling stock is very low, but estimate will either lead to high or low proportion.

dynamic in character and is effected by the type of traffic, distance, speed of train and the price level etc. If, any how, the approximate estimate of cost be made it will either lead to under or over charges. Further, these approximate charges ignore the additional cost, i.e., the additional cost of carrying that particular type of traffic and the fair share of the standing cost or cost of unused capacity of the rolling stock.[1] Secondly, railway cost is joint and is indistinguishable, thus the allocation of cost to a particular item of traffic is impossible.[2] In this way, to ascertain whether charges shall be based on the basis of cost of service is 'impossible'.[3]

Value of service, on the other hand, is one under which the railways try to extract as much as possible out of the margin iee. the maximum rates[4] resulting from the conveyance of articles from place to place. Thus this principle is defined as the augmentation of value which transport gives to an article.[5] This augmentation in value is in whole or in part due to its transport from place of origin to the place of

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1. 'Economics of Transportation', by D.Philip Locklin,p.152.
2. 'Principles of Economics', by Prof. Taussing,Vol.II(1924),p.395.
3. 'Element of Railway Economics', by Sir W.M.Acworth,p.58.
4. This word has been used by Prof. D.Philip Locklin in 'Economics of Transportation',p.142.
5. Definition given by Prof. Colson, quoted from 'The Economics of Indian Rail Transport',by J.Johnson,p.137.

use. If there is only one source of supply, the consumer will bear the whole of the cost of carriage for whatever rate is charged for transport, must be added to the cost of production in fixing the minimum selling price of the article and accordingly the carrier can demand its own price. However, in some circumstances when the value of service is very great to a particular businessman, yet he is not willing to pay full for it as alternative means of transport are available for him. In this way, this theory leads the idea of competition between consumer and the conveyance or also between the different conveyances, and thus fails to give appropriate basis for fixing the transportation charges.

However, when these principles fail to give appropriate basis for reasonable charges both from the side of consumers and the conveyans the question arises, what should be the basis for reasonable charges and how these should be fixed. According to the economic principles, reasonable prices are those which are fixed on the basis of 'demand and supply'. In railway terminology, it is known as 'value of service supplement to cost of service'.[1] Here both these principles give upper and lower limits for railway charges, because it is not possible to sell any thing beyond the price which the consumer is willing to pay or their

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1. It is also known as 'What the Traffic will bear'.'Elements of Railway Economics,'by Sir W.M.Acworth, p.81.

ability to pay, nor less than the cost of its production. In railway economics number of conditions are effecting these two limits, namely, conditions effecting the rates and classification both and secondly, those only effecting the rates alone or in other words rates are also effected by the distance for which the traffic is carried.

In case of passangers traffic those conditions effecting the passanger traffic are: few classes and several fares applying to each or several classes and few fares applying to each.[1] The conditions effecting the goods traffic are: bulk in proportion to weight, liability of damage, method of packing, size of the consignment, period of conveyance, regularity of traffic, type of wagon required, competitive character of the article or the articles of substitute. In applying these conditions it is always kept in mind that 'higher the value of an article, higher the class in which it placed'.[2]

Conditions those are effecting the rates on distance basis are: zone system under this system railway territory is divided into number of zones and one rate is charged within the zone for any distance; postal system in this system rate

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1. 'Outline of Railway Economics,'by Douglas Knoop,p.225.

2. Ibid, p. 188 and 'The History and Economics of Transport,' by Adam W.Kirkaldy and Alferd Dudley Evans,p.117.

charging is identical to the zone system and the country is treated as one zone and one rate is charged for any distance like the postal rates; equal mileage system here charges are fixed on per mile basis;[1] telescopic system here charges are fixed on slabs of different mileage.[2] Though each system has its own inherent shortcomings, but under telescopic system rates can be adjusted accordingly by changing the length of each slab.

In this way the task of rate making is a very tricky job, and those who are entrusted with the task of rate making, can do no better than making experiments and thus each step is a milestone in the progressive realisation of maximum satisfaction. Therefore, the rate making in a dynamic society always present new problems of over increasing complexities. Categorical generalisations are impracticable. Indeed, there cannot be any one rate said to be fair in all cases and at all times; it varies in different cases and at different times.[3]

RAILWAY RATES AND FARE POLICY IN INDIA

In the early stages of railway development, there was no

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1. It is also known as Flate rate or Horizontal rates.
2. It is also known as Tapering rates.
3. 'Railway rates in relation to trade and industry,' by R.D.Tiwari, p.2. Prof. G.Lloyd Wilson also remarks that, 'rate making is not an exact science but a matter of expert judgement. Articles cannot be assigned to classes through the use of yardstick, the scale, or the dollar,' but by the grouping of articles by analogy to other articles which are classified'. - 'Transport and Communications,' p. 145.

rationale behind constructing the railway rates and fares structure. As the construction and development of 'Indian railways was initially an political and military considerations and partly for the administrative and commercial interest of the East India Company, the then ruler of the country'.[1] Therefore the rates and fares policy so evolved in these years was effected by the five per cent guaranteed return on capital investment by the then railway companies in India. For instance, the contract of G.I.P. Railway provides:

> 'the said railway company shall be authorised and empowered to charge such fares for the carriage of passengers and goods, and such rates for telegrams and such tolls for the use of the said railway, as shall have been approved by the East India Company, and shall not, in any case, charge any higher or different fares or tolls whatever, without such approval being first obtained; but such fares and tolls shall, when such net receipts are hereinafter mentioned, shall in any year, have exceeded ten per cent upon the outlay, be reduced in accorance with any requisition of the East India Company in that behalf, but only with a view of limiting the said fares and tolls so far that the net receipts shall not exceed ten per cent as aforesaid'.[2]

Thus, under these terms of contract, Government has no power to reduce the rates and fares already established until the line

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1. 'Freight Structure Enquiry Committee Report, 1957', p. 3.
2. Ibid., p. 4.

earned a dividend of over ten per cent. Therefore, each railway company was free to fix their own independent rates basing on the considerations, 'to maximise gain from a minimum volume of traffic'.[1]

GOODS FREIGHT POLICY

In view of such autonomous policy, the first railway classification followed by different railways is given below:

Table No.1

(figures in pies per tonne per mile)[2]

Class	1853	1854-55	1856-57	1858-59
	G.I.P. Railways	E.I.Railways	Madras Railways	
1	10	9	6.75	8
2	14	13.50	13.50	10
3	18	18	20.25	12
4	20	27	-	-
5	30	54	-	-

1. Ibid., p. 4.
2. Ibid., p. 4

The commodities classified between these classes are:

1st class	-	Mineral goods, Manures, Firewood, Salt, Timber, Pig-Iron, Iron bars and Empty drums etc.
2nd class	-	Grain, Oilseed, Cotton, Jute, Chillies, Jagree(gur) Sugar, Cocoanut, Betelnets, Flour, Ghee, Earthen-ware, Gunnies, Hide and skin, Oilcake, Saltpeter, Iron & Steel articles and twist.
3rd class	-	Wines and spirits, Tobacco, Turmeric, Silk raw, Machinery and Vegetables.
4th class	-	Books, Cutlery, Glass & glasswares, Medicines, Perfumery, Tea Tarpaulines and Silk Manufactures.
5th class	-	Accepted articles like, Gold, Silver, Jewellery. But on Madras Railway 3rd class includes the commodities of 4th and 5th class.

In this way there were only five classes, in the very beginning but the classification of different goods into these classes do not seem to be on any objective basis and each railway company had its own rates.

Later on, the demand for conveyance of goods rose steadily but the existing railway capacity was inadequate to meet the demand. Hence, to restrict the traffic, in 1866, a temporary increase in freight rate was made by G.I. Railways and E.I. Railways. The Government was not satisfied by this temporary enhancement and realised

to control the freight rates policy in future. In 1868, maximum rates for all railways were fixed,[1] leaving a margin for exercising the discretion by the then companies in varying working rates, as circumstances in their opinion required. The following are the maximum rates so fixed:

Table No. 2

(figures in pies per ton per mile)

Railways	First	Second	Third	Fourth	Fifth	Food grains	Coal
G.I. R. Railways	12	18	24	36	54	12	10
B.B. & C.I. Railway	12	18	24	36	54	12	10
Madras Railway	12	14	16	24	36	-	-
Great Southern Railway	12	14	16	24	36	-	-
Scindia Railway	12	18	24	36	54	12	10
E.I. Railway	9	13.5	18	27	54	9	9
East Bengal Railway	9	13.5	18	27	54	9	9
C.& S.E.Railway	9	13.5	18	27	54	9	9
Punjab Railway	9	13.5	18	27	54	9	9
Delhi Railway	9	13.5	-	27	-	6.75	6.75
O.& R.Railway	9	13.5	-	-	-	-	-

Source: 'Freight Structure Enquiry Committee Report', 1957, p.5

1. This action was taken in the persuance of the Secretary of State for India, vide his despatch No.48, dated June 25, 1868.

Even in this autonomy, the rates appear to be uniform for all railways, as noticed from the improved revision of rates in 1866. However, still then different rates were prescribed for foodgrains and coal. Secondly, there was no specific restriction on the powers of the company to transfer articles from one class to another.

In 1887, Col. Conway Gordon, the then Director-General of Railways in India, has strongly recommended for the levy of uniform general classification of through traffic for all railways. On these recommendations Government has clarified its attitude in this matter through a circular on December 12, 1887. Later on, Goverment had passed the Indian Railway Act - 1890, following the same lines. But railways were still free to levy charges as they considered fit and reasonable. This growing interchange of traffic, necessitated the Government to construct a general classification for uniform application, on all railways who were the parties to Indian Railway Conference Association. This new classification introduced on July 1,1910, having following basis:[1]

Class	Rates in pies per ton per mile.
1	8.1
2	13.5
3	18.9
4	21.6
5	27.0
Explosive	40.5

1. 'Indian Railway: One Hundred Years 1853-1953', p. 141.

However, this schedule, was not accepted by the few railways companies and their own rates remain in operation. In the meantime, when the government intervened in fixing freight rates, the First World War broke out and an urgent need of additional revenue was felt by the government. Accordingly, after passing Freight Tax Act 1917, a levy of one pie per maund per mile was charged on coal, coak and firewood and two pies per maund per mile was levied on all other commodities.[1] Later on, in 1821, a primage charge of two annas six pies per rupee of freight was levied instead on all goods traffic excluding grains and pulses, firewood and fodder. In this way government has treated railway freight as possible means of augmenting the revenue.[2]

The imposition of this surcharge was disliked by the public and railways both and was also disapproved by the Acworth Committee 1921, which recommended for substantial increase in freight in the country. Thus on April 1,1922, it was decided by the Railway Board to merge this surcharge in the basic rates and simultaneously four additional classes being interpolated into the then existing classes and maximum rates were enhanced by 15 to 25 per cent.[3]

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1. Railway Freight Structure Enquiry Committee Report 1957,p.10.
2. 'Indian Railways: One Hundred Years 1853-1953' p. 142.
3. Railway Freight Structure Enquiry Committee Report 1957, p.11.

The bases of these classes are given below:

Table No.3 (in pies per ton per mile)

Class	Freight	class	Freight
1	103	6	22.4
2	11.3	7	25.9
3	15.7	8	28.1
4	16.7	9	33.8
5	20.8	10	50.5

During the last fourteen years it was observed that classes were not properly spread for all commodities and a proper relativity did not exist between the rates of railway risk and owner risk. This was the opinion of the public criticism. Thus from May 1, 1956, following six new classes were introduced and the relativity in railway risk and owner risk rates also brought on a more rational footing, although not representing exactly the difference in the actual value of the risk involved.[1]

Class	Freight in pies per per mile
2 - A	12.4
2 - B	13.5
2 - C	14.6
4 - A	18.1
4 - B	19.4
6 - A	24.0

1. 'Indian Railways: One Hundred Years 1853-1953, p. 142.

Though with effect from March 1, 1940, an increase of two annas per rupee of the total freight charge was levied on all goods traffic excluding foodgrains, manure and fooder etc.[1] However, after independence and nationalisation of the railways in India, the freight structure was revised and standardised rates were levied for all railways with a separate wagon load scale from October 1, 1948. The new charges were according to telescopic continuous mileage basis, eleminating thereby circuitous routing of goods, and each commodity was classified into fifteen classes instead of sixteen as per 1936 schedule, depending upon its transportation characteristic, namely, volume bulk, weight, liability for claim etc. Each rate has three legs of 1 - 300, 301 - 600 and 601 and above miles, at the rate of 14.6, 12.2 and 10.8 pies per ton per mile respectively for first class with the corresponding rates of 57.0, 38.1 and 51.7 pies per ton per mile for the fifteenth class. Thus the rest of the classes having bases lying between these first and fifteenth class. As regards wagon load scales, these rates were lower than the first class rate with three legs. Though these legs vary from class to class. For example, in some cases the legs are 1 - 150, 151- 300,and 301 and above miles, in some cases 1 - 100, 101 - 400 and 401 and above miles, in some cases it was 1 - 500, 501 - 600, 601 and above miles; while the rates vary from 6.8 to 13.0 pies per ton per mile for first leg, from 5.4 to 9.5 pies per tone per mile for second leg, and 4.1 to 6.5 pies per ton per mile for third leg.

1.Ibid. 143.

The object of this revision was to simplify and rationalise of freight rates, to organise the railway rating policy, to prevent wastage of transportation from circuitous routing and to secure the modest increase in freight rates to match in part the increase in working cost.[1] But the important feature of wagon load scales, apart from their being below the first class, are that they have a sharper taper than the class rates and some of them crosses each other or in other words, while one scale is higher than the other at a certain mileage, the other become higher at another.[2]

This freight structure was again revised on April 1,1955 providing 10 per cent reduction in class freight of first leg and by 15 per cent in third leg, and side by side, a surcharge of 6 1/4 per cent was levied on all freight payable on all consignments below 20 maunds in weight.[3] From July 1, 1957, this supplementary charge was enhanced from 6 1/4 per cent to 12 1/2 per cent on all items excluding grains and pulses, manure, khaddi, newspapers, newsprints, books and milk.[4] Thereafter, on the recommendation of

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1. Freight Structure Enquiry Committee Report 1957, p.18.
2. The Economics of Indian Rail Transport, by J.Johnson,p.158.
3. Indian Railways, Vol. II, No.3, p. 321.
4. Indian Railways, Vol. III, No.3, p. 321.

Railway Freight Structure Eqniry Committee 1957, the existing freight structure was again revised to discourage the short distance traffic.

> 'We are of the opinion that the pattern of the legs should be revised. The revision that we recommend is intended generally to discourage traffic over very short distances, not to put too much burden on the traffic which moves over distances of 300 to 500 miles, and to provide for a comparative and progressive lightening of burden on traffic moving over distances beyond'.[1]

Railway Board, had with slight reassessment fixed the following bases for the freight rates:[2]

Table No 4

Distance	Rates in pies per ton per mile	
	Glass 100-A	Class 100-B
1 - 25	92.20	70.20
26 - 75	37.80	33.75
76 - 150	29.90	31.59
151 - 300	27.00	29.90
301 - 500	22.95	27.00
501 - 800	18.90	21.60
801 - 1200	16.20	19.21
1201 - 1500	13.50	14.75
1501 and above	4.05	4.05

1. The Railway Freight Structure Enquiry Committee Report, 1957, p. 25.
2. Ibid.

Under this new sbheme of rates, 12 1/2 per cent supplementary charge has been abolished and surcharge of 6 1/2 per cent was raised to 10 per cent on all consignments weighing less than 10 maunds instead of 20 maunds. It was done in keeping with the quotation of the revised freight rates in the metric system of coinage.

In this way, it becomes apparent that the railways construction and development in India was for the Company's political and military interest and not for the development of Indian trade and commerce. Therefore, the five per cent guaranteed rate of return on the capital investment has made the railway freight policy extravagant. But in later years [illegible] when the railways were state managed and controlled, government could not mould the freight policy under the urgent need of finances for the railway future development in India and has made railway freight a goods source of revenue by levying tax on it. However, after independence and nationalisation of the railways, our national government has also ignored to adjust the freight policy due to the heavy incidence of contribution to general revenue depreciation reserve fund and the additional requirement of finances for the quicker development under Five Year Plans. Therefore, in view of these financial needs freight structure has been revised simply to raise the revenue at four times between 1947-48 to 1960-61 excluding yearly changes. In this way, there was no rationale in fixing the freight.

CONSEQUENCES OF THE HIGH FREIGHT POLICY(1947-48 to 1960-61)

EFFECT ON PRICES OF ARTICLES

The high freight rate policy, as mentioned, has effected the prices of the articles which are carried by railways. Because, the transporation cost forms a part of the cost of the article which is sold in market, or it a part of the cost of production For example, the farmer or the manufacturer pays freight on all articles which they buy or sell in the market. In this way the cost of production includes all the cost necessary to put a commodity in the hands of the consumer. Therefore, higher freight means, higher prices of the goods which brought into the community or market. Adversely, low freight means low prices of these goods.[1] Table No.5 shows the percentage changes in freight rates of different classes.

It is find out that between 1947-48 till 1960-61 freight rates were increased of all articles at higher percentages. When in 1958-59, freight reliefs has been granted for first four classes of articles, thereafter, for rest of the classes rates are progressively increased at higher percentage. Thus it is argued that 'In the structural pattern there is such a lack of uniformity and evidence of opportunism that is difficult to resist the conclusion that the whole approach of the rate making

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1.'Economics of Transportation,' by D.Philip Locklin,p.27.

Table No. 5

Changes in freight for different classes(1944-45=100)

(Figures in averages)

Class/year	1947-48	1948-55	1955-58	1958-61
1	10.5	28.9	42.1	-21.1
2	9.5	28.5	40.5	-16.7
3	8.7	26.1	39.1	- 8.7
4	8.0	26.0	38.0	- 4.0
5	7.4	25.9	38.9	3.7
6	6.9	25.9	37.9	10 .5
7	14.1	25.8	38.7	17.7
8	14.9	25.3	37.8	29.8
9	15.3	25.0	37.5	37.5
10	15.8	25.9	39.0	53.2
11	15.7	25.3	37.5	57.8
12	16.8	24.7	37.1	64.0
13	30.0	22.9	35.4	76.0
14	79.9	35.5	44.2	124.0
15	-	68.8	85.6	327.0

Source: Goods Tarrif Nos.26,27 and 29-A along with amendment Nos. 40,26 and 21 respectively.

is empirical and inductive or designed with definite traffic in view rather than in consonance with any principle of uniformity of economic structuring'.[1] In this way, higher increase in freight must have increased the prices of the articles carried and thereby,

directly effected the economies. But here are two views for interpretation. According to former, it is not necessary that the prices must have increased by the increase in freight rates. It may be possible that consumption must have been curtailed, resulting thereby readjustment of production under the new demand conditions and establishing thereby new ewuilibrium of demand and supply. But according to later, it may be possible that the increased freight rates must have been shifted like the shifting of incidence of taxes. This shifting of increased freight rates are only possible under the condition of inelastic demand and elastic supply equilibrium, other wise under the condition of elastic demand and inelastic supply equilibrium increased freight rates cannot be merged into prices of the articles.

However, the general wholesale price index for this period clearly proves that the prices are regularly increasing during 1947-48 to 1960-61.[1] Therefore, it can be argued that the increased freight rates must have been merged into the prices of the articles carried by railways,[2] and thus the same

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1. Statistical Abstract,Govt.of India,November 1960(Monthly),

2. 'The freight charges forms a small proportion of the price of articles which have value relative to their weight or bulk, such as most manufactured articles; but on the cheaper articles the freight rate forms large proportion of the Price', Economics of Transportation', - D.Philip Lockline,p.32.

has indirect effect on the general price level.

EFFECT OF INCREASED FREIGHT RATE ON HAULS OF COMMODITIES

The increased freight, as has been mentioned, effected the prices of the articles, it may also possible that hauls of different articles must have effected. The following table shows hauls of different articles as per change in freight rates.[1]

Table No. 6

Hauls of different articles in miles

Articles/years	1947-48	1948-55	1955-58	1958-61
Jute pressed	212	185	155	159
Cotton pressed	280	244	268	219
Wheat	217	200	190	189
Rice	162	169	152	176
Sugar	224	261	209	206
Provision	190	155	169	136
Fruit fresh	65	81	118	193
Marble	82	103	93	55
Wood	144	145	173	196
Iron & Steel	273	238	235	256
Cement	147	127	121	79
Coal	88	91	93	111
Total	215	224	239	235

1. Hauls of an article is known as the average length of distance for which that article is carried by railways. However, Railway Board do not give hauls nor ton miles of the articles carried by

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As per this table, it is find out that higher freight rate have affected the hauls, in form of declining order for number of articles namely, jute(pressed), cotton(pressed), wheat, sugar, provisions, cement, iron and steel and many other articles transported by railway. Though the length of haul for few articles has increased considerably, but it is significantly too less than the length of hauls of other articles, particularly for 'coal' over which railways have transportation monopoly.

In this way, it becomes apparent that increased freight rate, on the other, at one hand and quicker development of other modes of transport effected the transportations of goods by railways considerably.

PASSANGER FARE POLICY

As on the autonomous lines the freight policy was established, in the early years of railway development by the then railway companies working under guaranteed system, passanger fare policy too was established on the same lines. The first schedule so

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railways. Hence, the hauls of different articles have been estimated on the assumption:

$$\frac{\text{Revenue}}{\text{Tons carried}} = \frac{\text{Revenue per ton}}{\text{Freight per ton mile}}$$

Source of data: Railway Board Report(Annual), Vol.II, Statement -15.

followed was given below:[1]

Table No.7

Railways	Pies per passenger per mile		
	First class	Second class	Third class
East Indian Railway	18	9	3
Great Indian Peninsula Railway	18	9	2.5
B.B.& C.I.Railway	15	7	3
East Bengal Railway	18	9	3
Oudh Ruhalkhand Railway	18	9	3

In this way there was only three classes of passangers traffic with same fares for most of the railways. Later on, the demand for passanger conveyance rose steadily and railways here too, had increased the fares to restrict the traffic, but the government was of the opinion that fares should be lowest so as to attract more passangers and to give maximum benefit to the users. Therefore, to control the fare policy maximum and minimum limits too were fixed in 1887, leaving a margin for exercising the

1. 'Indian Railways: One Hundred Years 1853-1953, p. 129.

discretion for increased working cost. The basis so fixed were:

Class	(in pies per pasanger per mile)[1] Maximum	Minimum
I	18	12
II	9	6
Inter	4.5	3
III	3	1.3

This schedule remaindd unacceptable to the then existing railway companies and they continued to follow their own rates.[2] In the mean time when the government was going to intervene in the existing fare structure, war broke out and the railway operation was utilised for war purposes. To restrict thetraffic, 'Priority system' was introduced and later on, due to economic depression of 1930s any change in the fare structure was not made. However, in 1931-32, a slight change in the passangers fare was made to meet the increased cost.[3] Thereafter, by the further interference in the fare structure, all railways gradually followed uniform rates for passanger traffic. The fares for 1939-40 were as follows:

The rates per mile per passanger for First class was 24 pies for 1 - 300 miles plus 18 pies over 301 miles; for Second class, 12 pies for 1 - 300 miles plus 9 pies over 301 miles and for Third class 5 pies for 1 - 50 miles plus 3 pies

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1. Ibid., p.130, The action was taken on the persuance of Secretary of State for India, vide his despatch No.48,dated June 25,1868, after passing a resolution No.1446,dated December 12,1887.
2. 'Indian Railways: One Hundred Years: 1853-1953xp.152.
3. Railway Board(Annual) Report, 1931-32,Vol.I, p.40.

over 51 miles. Then on March 1, 1947, including those of one rupee and below upto 8 annas for all classes of passangers traffic in local and through booking were enhanced by 6 1/4 per cent on all railways.[1]

However, after independence and nationalisation of railways, passanger fares were standardised at 30 pies, 16 pies, 9 pies and 5 pies per passanger per mile for First,Second, Inter and Third classes respectively and 7 1/2 pies and 4 pies per passanger per mile for Inter and Third classes ordinary for all railways.[2] This revision of fares created great unrest in all quarters that due to the preference was given to upper classes and more burden placed on lower classes. Thus, on January 1, 1949, after abolishing Inter class new classification was introduced, on the assumption that third class passangers might shift to these upper classes having more costly travelling facilities.[3] The bases were as

	(pies per passanger per mile)
Class Air-conditioned	36
Class I	24
Class II -Mail	9
Class II - Ordinary	7.5
Class III - Mail	5
Class III - Ordinary	4

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1. 'Indian Railways: One Hundred Years: 1853-1853, p.159.
2. Indian Railways: Vol.I, No.1, p. 26.
3. Railway Board Report(Annual) 1948-49,Vol.I, Para 68,p.34.

However, this classification did not proved very successful as the reduction of fares of Class I and II did not provide any incentive to the middle class passangers for travelling by these classes and hence no increase in the revenue made. Similarly, the introduction of the sleeping accomodation, on December 1, 1949 at a surcharge of 6 pies per mile on the fare of Class II, was failed. Therefore, on August 1, 1950, the old classification was restored and the surcharge of 6 pies per mile from Air - conditioned class was abolished. The bases were as:

	(In pies per passanger per mile)
Air-Conditioned class	30
First Class	24
Second Class	14
Inter class mail	9
Inter class-ordinary	7.5
Third Class - Mail	5
Third Class - Ordinary	4

Thereafter, on April 1, 1951, on the introduction of First Five Year Plan, passanger fares were revised to earn additional revenue for planning development. But this revision of fares have effected the passangers travelling for long distances and hence the passanger fares were again revised on telescopic continuous mileage basis along with abolishing the First class.

The bases were:

Mile legs	Pies per passanger per mile					
	Air-Conditioned.	First class	Second class mail	Second class Ord.	Third class Mail	Third class Ord.
1 - 150	34	18	11	9.5	6.25	5.25
151 - 300	34	16	10.5	9	6	5
301 - and above	32	15	9.5	8.5	5	4.5

Source: Passanger Fare and Rates for coaching traffic on Indian Railway, March 1961.

These new rates were also not favourable to the masses, and it was argued that though traffic for long distances benefited by this change, yet it was not good to overlook the short distance traffic, because the short distance traffic constitute the major portion of the total volume of traffic. Moreover, short distance travellers were the lower income class and the lower middle class persons. Therefore, these new rates led to an increase burden of fares over them. However, no change in the passanger fares were made till 1960-61, except levying passanger fare tax on September 15, 1957.

In this way, there too it is apparent that in the early years of railway construction and development passanger fare policy was much extravagent than the goods freight policy, and the government in the years of state management and control, could not mould it due to urgent financial need. In view of such need, however, after independence and nationsliation of railways, no downward alteration in fares was made and regularly increased the fares. Therefore, here too it can be argued that there was no rationale in fixing the fares.

CONSEQUENCES OF THE HIGH FARE POLICY (1947-48 to 1960-61)

HIGH FARES AND INDIVIDUAL SACRIFICE:

As mentioned previously, that passanger fare policy was based on autonomous lines simply to earn revenue, in early years under the guaranteed rate of return and later on to meet the railway developmental expenditure. It means that under this irrational fare policy each passanger must have directly sacrificed more of his income, if he has travelled by railways. The following table shows the percentage changes of fares between 1947-48 to 1960-61.

Table No. 8

CHANGE IN FARES

1946-47 = 100[1]

Year of change	Air-conditioned.	First	Second	Third class	
				Mail	Ordinary
1947-48	-	111.1	133.1	166.7	133.3
1948-49	100.0	88.9	75.0	166.7	133.3
1949-50	83.3	88.9	75.0	166.7	133.3
1950-51	83.3	88.9	116.7	166.7	133.3
1951-58	83.3	100.0	133.3	200.0	166.7
1955-61	111.1	66.7	83.3	171.1	163.0

Source: Passanger Fare and Rates for Coaching Traffic on Indian Railways, Ministry of Railway, on March 1961.

As per this table, it is find out that changes in third class fares were at higher rate than those of other classes. Hence, it is against the principle of least aggregate sacrifice[1] because, the marginal utility of money is less to the rich and more to poor or less income group persons. However the third class travell comprises mostly of low income class and low middle class persons, whereas, the travell by higher classes comprises

1. 'The principle of least aggregate sacrifice, is the well agreed principle of public revenue of eminent economists like Dr.Cannan, Prof. Pigou, Dr.Dalton, Prof. Edgeworth and many others.' According to this principle, revenue should be raised in such a manner that sacrifice imposed on the people is the least, because every increase in revenue imposes sacrifice and pain. Therefore it is desirable that levy should be made according to the ability to pay' of each individual'.

mostly the rich or upper middle class persons. Therefore, it can be argued, that lower class passangers have sacrificed more of their income in Railway fares that the upper class passangers, if they have travelled by railways. In other words, it can also be argued that railways have derived more revenue from the poor and low middle class passangers giving in return lest travelling facilities, and derived less revenue from rich and upper middle class passangers giving in return more costly travelling facilities.

HIGH FARES AND PASSANGERS LEAD

The increased fares, as find out, directly, effected the income of the poor passangers, hence, it may be possible that the same too had effected the passangers load.[1] The following table shows the passangers lead of different classes between 1947-48 to 1960-61 as per change in fares.

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1. Like the goods haul, passangers lead is also known as the average distance a passanger travelled by railways. This passanger load is estimated on the assumption: total passanger revenue of different classes / total passanger miles of different class passangers.

Table No.9

Passengers lead in Miles

Years	Air-conditioned	First class	Second class	Third class	Total
1947-48	-	96.0	56.4	30.6	30.9
1948-49	833.6	42.2	51.9	30.9	30.5
1949-50	572.8	24.0	81.0	30.0	31.0
1950-51	500.4	19.3	118.8	30.1	31.0
1951-55	438.8	15.0	110.7	82.1	30.4
1955-56	367.4	35.7	169.7	118.5	29.2

Source: Railway Board(Annual)Reports,Vol.II,Statement No.12.

From this table, it is find out that third class passangers lead is too much low than the upper classes. It was all due to higher fare burden over third class than the upper class,[1] and hence, it seem that it leads the passangers of third class to travell for short distances. In later years, passangers lead has increased due to reduction in fares on the telescopic basis[2] and the attraction of various concessional tickets made

1. It is clear from the table No.3 that third class fares have increased by higher percentages than the upper classes, Third class passengers are low income class and lower middle class persons.

2. Under telescopic pattern, fare reduced according to the length of travell i.e. for long distance low fare and for short distance comparatively high fare.

available from time to time, viz., hill station concession, Kashmir concession, mela and fair concession, special pilgrimage concession, student tour concession and the increasing travelling facilities for third class, making thereby persons more travel minded. But still then the passangers lead for upper classes regularly declining.

In this way to conclude the above discussion, it can be said that high freight and fares policies, both have directly and indirectly effected the income of the general masses, whereas poor and lower middle class persons are sipped more than the rich and upper middle class persons.

CHAPTER III

RAILWAY INCOME (GOODS AND PASSANGER TRAFFIC) 1947-48 to 1960-61

Railway earning, as previously mentioned, depends upon passanger and goods traffic and from miscellaneous sources. The earning from miscellaneous sources depends upon the rules of Railway Board and forms a very insignificant part about 3.0 per cent of the total railway earnings. Therefore, the same has been excluded from our present study. However, in this chapter the trends and magnitude of goods and passanger earnings and the traffic have been presented.

SIGNIFICANCE OF GOODS AND PASSANGER EARNINGS

Railways, as mentioned, controlled and developed for commercial purposes, i.e., for quick and cheap transportation of raw material and finished products to and from the factories and markets, thus the carrying of passanger traffic is the secondary source of revenue to them. However, miscellaneous earning is the additional revenue earned by providing additional miscellaneous services. The following table shows the significant position of each.

Table No.1

RELATIVE POSITION

(Figures in per cent)

Years/	1947-51	1951-56	1956-61
Goods earning.	51.9	55.0	60.7
Passanger earning	46.1	43.1	36.7
Miscellaneous earning	2.0	2.0	2.4

Source: Railway Board(Annual) Report, Vol.II Statement No.6

Like the few advanced western countries, namely, United Kingdom, United States of America and Canada, the significance of passanger receipt is declining year after year from 1949-61 For example, in U.K. it has decli ed by 23.4 per cent, in the U.S.A. by 32.3 per cent and in Canada by 21.8 per cent.[1] Similarly, in our country too, with the rapid economic development significance of passanger receipt has declined by 19.1 per cent. As against this, the goods receipt has increased by 171. per cent during the same period. However, in absolute terms passanger receipt has regularly increased.

1. Railway Board(Annual) Report, Vol.I, Appendix tables.

RAILWAY GOODS REVENUE AND TRAFFIC

GROWTH OF REVENUE AND TRAFFIC

Table No. 2

Growth of goods revenue and Traffic
1947-48 = 100

Years	1947-51	1951-56	1956-61
Goods revenue	155.9	118.23	264.5
Goods traffic	118.3	123.9	174.4

Source: Railway Board(Annual)Reports, Vol.II, Statement 29.

The growth of revenue from goods traffic gives the finding that the same has regularly increased when the movement of goods, too, on the other hand, has regularly increased due to partition and its effect in the pre-planning years, and later on by the rapid industrialisation under the two five year plans. Moreover, the increase in the goods revenue and traffic is by 555.0 per cent and by 192.0 per cent respectively by the end of 1960-61. In this way, railways have by the regular increase in freight charges, earned an additional revenue by 174.5 per cent by each unit of goods till the end of 1960-61.[1]

1. Base 1947-48 = 100

CLASS-WISE GROWTH OF TRAFFIC AND REVENUE

The total goods traffic has been classified as revenue earnings and non-revenue earning traffic. The revenue earning traffic has been further classified into seven broad catagories, namely, agriculture, animal, mine, mineral, forest, manufactured and miscellaneous products. The articles include in these catagories are: foodgrain, oilseeds, cotton, jute, fruits and vegetables, fodder, sugarcane, tobacco, livestocks, coal, marble and stones, ores, mica, sand, firewood and other wood, lac, biri leaves, fuel oil and other mineral oils, sugar, cotton and jute manufactured, cement and its by-products, iron and steel and by products, glasswars and glass, tea etc., and their number of by products. The later type of traffic is military traffic and railway material and stores. This military traffic and railway stores were, in previous years, carried against freight charges, but later on, both are declared as non-revenue traffic. Hence, our present classification of articles excludes them. The following table shows the growth of revenue and traffic both as per these catagories of articles.

Table No. 5

Class-wise growth of goods traffic and revenue 1947-48=100

Products	1947-51	1951-56	1956-61
AGRICULTURE			
a) revenue	126.2	160.6	345.2
b) traffic	116.2	129.7	184.0
ANIMAL			
a) revenue	233.5	307.8	501.9
b) traffic	151.2	221.3	320.9
MINE			
a) revenue	143.4	216.8	411.5
b) traffic	115.8	141.8	220.4
MINERAL OILS			
a) revenue	206.1	426.4	599.4
b) traffic	159.8	324.3	499.1
FOREST			
a) revenue	163.4	210.7	382.1
b) traffic	117.0	121.2	168.4
MANUFACTURE			
a) revenue	147.6	211.0	375.0
b) traffic	124.8	169.0	270.6
MISCELLANEOUS			
a) revenue	116.7	146.0	200.0
b) traffic	135.5	156.9	202.3

Source: Railway Board(Annual) Reports,Vol.II, Statement 29.

This table again gives finding that goods traffic and revenue both have increased regularly in all catagories. However, the revenue from each catagory has increased at a faster rate than the traffic of the same catagory due to the regular increase in freight charges. Moreover, in catagory of miscellaneous products, freight traffic has increased at faster than the revenue,

which is not due to any effect of higher freight charge over the articles of this catagory but due to changes made by Railway Board in catagorising the articles for presenting the data.[1] Thus by this regular increase in freight charges, railways have derived an additional revenue from each unit of traffic by 156.3 per cent from agricultural products, 148.6 per cent from animal products, 200.2 per cent from mine products, 153.3 per cent from mineral products, 251.1 per cent from forest products, 146.0 per cent from manufactured products and 99.3 per cent from miscellaneous products.[2] The percentage variance in the additional revenue is due to movement of articles for varying distances as mentioned previously,[3] and the quantity of articles included in different catagories. Thus, this percentage variance in additional revenue further requires to analyse the relation of freight per ton mile and the revenue per ton mile of the articles, carried by railways. Hence, to scrutinise the statement few articles are taken for analysis. The following table shows the same:

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1. The Data presented in this table after re-arranging these catagories on the basis of 1960-61 report. Accordingly,'fodder' transferred from miscellaneous products to agricultural products, salt transfered from mine products to manufactured products, provision from products of manufactured to miscellaneous products, Similarly number of other articles,namely,glass and glasswares,paper,tea,tobacco manufactured,non-ferrous metal etc., all transfered from different catagories to product of manufacture.
2. Base 1947-48 = 100.
3. Chapter III, table No. 'Hauls of different articles'.

Table No. 4

Earning and Freight Per Ton Mile(in paisa)

Years/articles	1947-51		1951-56		1956-61	
	Earning.	Freight.	Earning	Freight.	Earning	Freight.
Coal	6.5	6.3	6.7	7.0	7.3	7.4
Wheat	6.2	6.3	7.0	7.0	8.5	7.4
Cotton	11.1	10.8	12.4	12.0	16.1	15.9
Marbles	6.6	7.6	7.5	8.3	14.1	10.6
Sugar	8.6	8.0	9.2	9.0	10.4	11.6
Cement	8.0	7.4	8.5	8.3	13.0	9.6
Iron & Steel	8.7	9.8	10.0	9.8	11.2	10.9
Jute	10.6	9.1	11.4	11.2	14.7	15.1
Wood	6.6	6.8	7.0	7.7	7.6	8.8
Fruits & Vegetables	7.7	7.4	8.5	8.3	5.1	9.4
Provision	14.9	14.5	16.0	15.9	20.0	19.7

Source: Railway Board(Annual)Reports,Vol.II,Statement 29 and Goods Tariff Nos. 26,27 and 29 supplementry and their Corrections No.40, 26 and 21 respectively.

It is find out from this table that freight rates are high for certain articles, therefore, the earning per ton per mile is less than the freight charges for that articles, while for the others the freight rates are less, therefore their revenue is more but not very high. For example, 'coal'[1] whereupon railway fixes freight charges for other articles remained high for the last decade, and thus the earning per ton per mile is less than

the freight. Therefore, the percentage variance in earnings is due to freight charges of different articles.

In this way, it becomes apparent that goods revenue had regularly increased by the increase in goods traffic, caused by the partition of the country in pre-planning years and by the rapid industrialisation under two five year plans, on the basis of high freight rate policy throughout the period. However, this high freight rate policy have effected the movement of articles and thus railways are not able to earn revenue equal to their freight per ton mile from certain articles, whereas from other articles railways have earned more than the freight per ton mile

RAILWAY PASSANGER REVENUE AND TRAFFIC

The passanger revenue and traffic both are divided, according to class accomodation available on railways. Although, air-conditioned class is introduced on January 1, 1949 and third class air-conditioned on October 2, 1956 to provide more comfortable travel to passengers. The revenue and traffic of second class include the revenue and traffic of second class ordinary. However, inter class mail and ordinary has been abolished on January 1, 1949 till March 31, 1950, and thereafter completely redesigned as new second class mail and ordinary. Therefore, the revenue and traffic of inter class

has been included into second class. Thus the presented classification shows the compact position of second class and the third class includes third class ordinary too. The following table shows the relative significance of each class as per revenue and traffic separately.

Table No. 5

Relative Percentage position

Classes/years	1947-51	1951-56	1956-61
Air-Conditioned Class			
i) revenue	0.1	0.5	0.9
ii) traffic	0.0	0.0	0.01
First Class			
i) revenue	5.3	2.5	6.0
ii) traffic	0.8	1.2	1.9
Second Class			
i) revenue	12.5	9.1	4.8
ii) traffic	2.9	1.9	1.0
Third Class Air-conditioned			
i) revenue	-	-	0.2
ii) traffic	-	-	0.01
Third Class			
i) revenue	84.3	88.1	88.1
ii) traffic	96.3	96.9	97.1

Source: Railway Board(Annual) Reports,Vol.II, Statement No.12.

This table gives the finding that third class passangers contribute most of the revenue to railways and accounts for

highest number of passangers throughout the period. The air-conditioned class has yielded very small part. On the other hand, the relative position of different classes is considerably changing. The earnings and the traffic of third class have continuously increased throughout the period and the same is also true for the air-conditioned class, when the position of first class and second class is altogether different, i.e, in the first class revenue has declined between 1951-56, while the traffic has increased. It seems that the passangers have short distance journey upto 15 miles[1] having high fares by 11.1 per cent, while in later years by the reduction in fares by 33.3 per cent[2] and introduction of telescopic basis,[3] the situation reversed between 1956-61, and the revenue has increased at faster rate than the traffic at the instance of increased passangers lead at 56 miles.[4] Similarly, in second class the revenue and traffic both have regularly declined considerably during 1947-48 to 1960-61. But the introduction of third class air-conditioned on October 2, 1956, the position of second

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1. Chapter II, table No.9.
2. Ibid., Table No. 9.
3. Under tolescopic system fares are comparatively higher for short distances than long distance.
4. Chapter II , table No.9.

class has further deteriorated to a great extent. In this way, it is clear that passanger fare has close relation with the revenue and traffic both and as a result of an improvement in income, passangers are trying to travell by more comfortable classes.

GROWTH OF PASSANGER RECEIPT AND TRAFFIC

Table No. 6

Growth of Passanger Receipt and Traffic

1947-48 = 100.

(figures in average)

Years	Passanger receipt	Passanger traffic
1947-51	124.9	116.4
1951-56	149.5	123.9
1956-61	176.4	149.4

Source: Railway Board(Annual) Reports,Vol.II,Statement No.12.

The passanger traffic and receipt both have regularly increased between 1947-48 till 1960-61. The growth in receipts, however, have been greater than that in passanger

traffic. This has been due to the increase in fare rates at different times and also due to the factors such as, population migration caused by partition of the country, Korean War, concessional tickets issued by different railways for different classes making thereby peoples more travel minded etc.[1] However, by this increase in fare rates, railways have secured the additional revenue of 108.4 per cent by each unit of passanger. But we have no means to find out how much these factors have increased the traffic and thereby the revenue.

CLASS -WISE GROWTH

Table No.7

Class-Wise Growth of Passanger and receipt

1947-48 = 100

Years/class	1947-51	1951-56	1956-61
Air-conditioned.			
i) revenue	122.2	528.9	1202.2
ii) traffic	127.2	625.8	1514.5
First class			
i) revenue	119.6	101.5	309.6
ii) traffic	388.6	631.5	1207.5
Second Class			
i) revenue	105.4	74.4	58.9
ii) traffic	65.4	45.4	27.4
Air-Conditioned Third class			
i) revenue	-	-	155.7
ii) traffic	-	-	129.6
Third class			
i) revenue	125.8	160.6	188.8
ii) traffic	118.2	126.8	155.3

Source: Railway Board(Annual)Report,Vol.II,Statement No.12.

1. Railway Board(Annual)Reports,Vol.I,Chapter,'Commercial'.

2. Refer to Chapter No. 2 : 'Railway Rates and Fare Policy'.

This table gives the finding that third class revenue increases at faster rate than the traffic of this class. It is due to the regular increase in fare of this class between 1947-48 to 1960-61. Although, the growth of revenue and traffic of other classes, namely, air-conditioned, first and second; is altogether dynamic and based on the changes in fares. For example: during 1951-56, second class fare raised by 33.3 per cent on April 1,1951.[1] It seems that most of the passengers who are accustomed to travelling by this class have either utilised lower class or upper class whose fare raised at the par of 1946-47.[2] Thus the revenue and traffic both have declined considerably. Similarly, for first class, the change in fare at par of 1946-47, and reduction in fare of air-conditioned class on August 1, 1950 by 6 pies per passenger per mile, again shows that most of the passengers accustomed of this class have utilised air-conditioned facilities at a bit higher fare from this class. However, in air-conditioned class revenue and traffic both have increased by the diversion of traffic of lower class and the regular traffics of this class considerably.

As regards the period 1956-61, the growth of revenue and traffic of air-conditioned class and first class both have

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1. Chapter II , table No.8.

2. Chapter II , table No. 8. .

raised considerably by introducing the telescopic fares. Therefore, it again seems that the traffic of second class have further attracted toward upper classes for taking more comfortable journey,[1] or towards air-conditioned third class which run by weekly on important routes. In this way, the traffic and revenue of second class has further deteriorated.

In this way, it becomes clear that passanger revenue has increased by the increase in traffic at the basis of increased fare charges regularly. When the fare has close relation with the traffic and thus to revenue of upper classes, namely, air-conditioned, first and second. Because the increased fare, leads the passanger of either upper class to travel by decended class, when the telescopic system of rates have pushed the long distance passangers to utilise higher classes. Although, the third class passanger fare has no relation with the traffic, because, they have no alternative to utilise any lower class and thus the higher fare, has increased the revenue from this class. Therefore, the each unit of passanger have given the additional revenue of 74.7 per cent to air-conditioned class, 22.2 per cent to first class, 24.6 per cent to second class, 102.7 per cent to third class air-conditioned and 122.2 per cent to third class, respectively on the basis of changed

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1. It is true under principle of telescopic pattern where fares are low for long distance corresponding to short distance.

fares between 1947-48 to 1960-61. This variance in revenue is due to the passenger's varying lead as mentioned previously.[1]

Thus, it can be concluded that fare and freight both have close relation with the movement of traffic and thereby to revenue. Therefore, the high fare and freight policy, though increased the revenue but have effected the movement of traffic in early years. However, by the introduction of telescopic system of rates, movement of traffic has improved to longer hauls but high rate still hinders in it.

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1. Chapter II, Table No. 9.

CHAPTER IV

RAILWAY EXPENDITURE

Railways expenditures of two types, namely, capital expenditure and working expenditure. However, not detailed cost studies can be done on the basis of the available data, because, the present accounting method is determined by the needs wholly of budgetary and general administrative purposes and most of the expenses are treated as a whole and not allocated between various types of traffic.[1] In this way, wherever, available is the average cost of traffic. But for economic analysis average cost is not crucial and it is necessary to know the marginal cost per unit of traffic; with the existing traffic, plant and equipment. For example, the cost of transporting a car load of coal to a certain specified distance and the cost of moving the empty car back to the pit mouth; the cost variance in low rated traffic with the high rated traffic etc.[2] Therefore, in absence of such cost data cost economies to railways cannot be worked out. However, in this chapter the trends and magnitude of railway expenditure has been presented.

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1. Since 1955-56, railway board report shows the allocation of expenditure between passenger and goods traffic, hence the same has been utilised for analysis, but in absence of prior data nothing is worked out for that period.

2. Vide: Railway Freight Structure Enquiry Committee report, 1957, p.79 & The Report of the Transport Policy and Coordination, 1931, p.77.

CAPITAL EXPENDITURE

Capital expenditure on railways is met out from two sources, namely, from general revenue over which railways pay interest charges[1] and secondly form railways own savings, i.e., the railway net gain is utilised in future developmental expenses and on passanger amenities[2] which again from a part of the railway capital. The following table shows capital expenditure from central fund:

Table No. 1

Capital Expenditure from Central Fund

(in crores of Rs. peryear)

Year	Works	Rolling stock	General charges	Stores not finally accounted	Other intengible assets.	Total
1947-51	10.76	5.00	1.56	10.51	0.02	25.86
1951-56	8.82	17.25	1.05	1.25	- 0.05	28.31
1956-61	47.14	55.19	5.87	5.56	- 0.18	107.60

Sources: Railway Board(Annual)Report,Vol.II,Statement No.2(a).

In pre-planning years due to the great demand of railway renewal and replacement caused by intensive and extensive utilisation of railway plant and equipment most of the investment was made on the railway reconstruction and on purchasing stores. But the introduction of the first and second five year plans for economic

1. 'Railway Convention Resolution',passed from time to time governs the rate of interest charges and the contribution to general revenue.

2. Passanger amenities include,water supply,overbridge on stations,fans in passanger boggies and plateforms,Air-conditioning plants and many other amenities of the sams nature etc.

development, expenditure on purchasing of rolling stock has considerably increased with a view to meeting out the growing needs of the growing society.[1] The said amount was spent in the following manner:

Table No.2

Capital Expenditure from Central Fund

(in crores of Rs. per year)

Year	Open lines	New construction	Manufacturing units and miscellaneous items	Total
1947-51	22.76	3.09	-	25.85
1951-56	23.31	2.67	2.40	28.38
1956-61	86.49	16.17	6.93	109.60

Source: Railway Board(Annual) Reports,Vol.II,Statement No.3.

In this way it becomes clear, that in the pre-planning period more was spent on meeting the demand for open lines and significantly less on new railway line construction. But in the two plan periods by the increase in total expenditure on railway development, considerable editional expenditure was made on railway manufacturing units,[2] along with the expenditure on open lines and new lines construction etc. thereby making railways a self-sufficient unit.

1. 'Under the estimated traffic increased during Second Plan, it is expected that the facilities provided by railways may short fall of requirements by 10 per cent of rolling tock and 5 per cent in lin capacity'. Second Five Year Plan, p. 464.

2. These manufacturing units are either established or assisted for manufacturing railway rolling stock in the country, namely,Chitranjan Locomotive works,Calcutta,Integral Coach Factory Perambour,Hindustan Aircraft Factory Banglore,Tata Locomotive and Engineering Works Jamshadpur,Coach Furnishing Factory Madras,Indian Railway Locomotive Component Works,Varanasi,Heavy Electrical Ltd.Bhopal,and a number of railway workshop statted production of other intangible assets for Railway needs. RAILWAY NEEDS.

On the other hand, expenditure incurred from railway's own saving is shown in the following table

Table No. 5

Capital Expenditure From Railway Funds and Borrowings

(in crores of Rs. per year)

Year	Capital loan	Depreciation reserve fund	Development fund	Revenue reserve fund	Total
1947-51	-	-	-	-	-
1951-56	28.62	18.91	8.99	4.72	61.04
1956-61	108.69	11.44	22.28	10.06	153.47

Source: Railway Board(Annual) eports,Vol.II,Statement No.5

As per policy and small allocation under the First plan, railway expansion and development was a part and parcel of railways own liability and the Central Exchequer has only paid the assessed amount under the plan. Hence the expenditure from loan account and from own resources was meagre upto 46.88 per cent and 53.12 per cent respectively. Although, by the change in the policy under Second Plan capital expenditure has considerably increased upto 71.47 per cent from loan account and 28.53 per cent from railway own resources. The increase in the expenditure from loan account

was made at the instance that Government of India has by that time secured external four big loans[1] for railway development. In this way, the huge capital expenditure both from central fund and railway's own savings along with outside borrowing, railway capital-at-charge has increased to a great extent by 168.5 per cent as shown in the following table-

Table No. 4

C A P I T A L - A T - C H A R G E

(In Rs. per year)

Year	Total (in crores)	Per route mile (in lakhs)	Per route mile Broad guage (IN LAKHS)	Metre guage[2] (in lakhs)
1947-51	748.48	2.45	2.59	1.02
1951-56	862.93	2.54	2.88	1.56
1956-61	1,261.51	3.61	5.88	1.54

Source: Railway Board (Annual) Reports, Vol. II, Statement No. 14.

WORKING EXPENDITURE

As per financial and administrative purposes, railway working expenditure is divided into four majore heads, namely, general

1. Chapter I, 'Railway Contribution for planned development', p.13.
2. The narrow guage section of the Indian Railways is either merged into broad guage section or metre guage section of the different railways as per data in the report is available.

administration repair and maintenance, operating expenses and appropriation to depreciation reserve fund. The following table shows the relative position of each item:

Table No. 5

Relative Position of Each Head

(Figures in average percentage)

Year	General administration	Repair and maintenance	Operating expenses	Depreciation reserve fund
1947-51	26.6	29.1	35.6	8.7
1951-56	20.2	29.4	36.5	14.1
1956-61	17.9	31.8	36.2	14.1

The above table give the finding that operating expenses form major part of the railway working expenditure, while the lowest part is accounted for the depreciation reserve fund. On the other hand, the relative position of each component of railway expenditure has changed considerably. The expenses on railway operation and repair and maintenance and depreciation reserve funds have increased continuously when the expenses on general administration has continuously declined. However, in absolute terms expenses on general administration has regularly increased

between 1947-48 to 1960-61.

GROWTH OF WORKING EXPENSES

Table No.6

Growth of Working Expenses -1947-48=100

(figures in average)

Year	General administration.	Repair and maintenance	Operating expenses	Depreciation reserve fund
1947-51	89.8	151.0	135.0	128.8
1951-56	89.1	165.8	169.2	259.8
1956-61	106.7	243.3	244.0	375.0

Source: Railway Board(Annual)Report Vol.II,Statement 30(a)

In absolute terms, however, the working expenses have continuously increased on all heads as is apparent from the above table. Moreover, the operating expenses and the expenses on repair and maintenance both have increased at faster rate by 100.7 per cent and 185.5 per cent respectively,than the increase in general administration. The much faster increase in depreciation reserve fund is due to the convention resolutions passed in 1949 and 1954, providing Rs.35 crores and R .45 crores later on, simply to meet the future railway renewal and replacement more easily.[1]

1. Vide Railway Convention Resolutions 1949 & 1954,Article Nos.8 and 5 respectively.

TRANSPORTATION RATIO

It is the incidence of the working expenses to the total traffic handled by railways. The term working expenses includes the expenses made on general administration, repair and maintenance, operation and the share paid for the depreciation of the plant utilised, whereas, the total traffic is measured in terms of passanger and ton miles. The significance of measuring this ratio is to judge whether the railway maintenance element is high or low with the traffic carried by them. However, the following table shows the ratio so calculated.

Table No.7

Transportation ratio

(figures in average percentage)

Year	General administ-ration.	Repair and maintenance	Operating expenses	Depreciation charges
1947-51	75.7	110.5	113.8	108.6
1951-56	66.8	112.9	126.9	194.9
1956-61	60.8	138.6	139.0	215.7

Source: Railway Board(Annual)Report,Vol.II, Statement Nos. 309a),12 and 15.

It may be noted that the increase in per unit of working expenses individually, is inconsistant with the economies of large-scale. Under the economies of the large-scale, the rise in the traffic do not increase the working expenses or the operating expenses in direct proportion with the traffic but a lesser rate, because half of the working expenses are fixed while other half varies with the traffic. However, in the present analysis it is find out that the rise in the traffic, working expenses regularly increased directly at faster rate, except the expenses on general administration, which declines. Therefore, it seems that the working expenses are effected by some external factors beyond control. Therefore, it is necessary to find out the effect of various other factors influencing the working expenses and the inter-relation between these four heads of expenses, for judging significance of each. The analysis is given in the following chapter.

CHAPTER - V

RAILWAY NET INCOME

It is the amount, which is left after meeing the ordinary working expenses,[1] from gross receipts.[2] Although, it is not the gain or loss to the railways, because there still exists certain liabilities on railways to be paid out from this amount, namely, interest charges & the contribution to general revenue.[3] In early years of railway convention this surplus amount or the net gain was shared among the shareholders of the then railway companies.[4] But gradually by the purchasing of railways from central fund this amount, i.e., net gain or loss, is now wholly spent on the railway future development after distributing it between a number of funds created for the purpose; namely, Revenue Reserve Fund, the amount of this fund is utilised for meeting the contribution to general revenue and deficit of working expenses if any; Development Fund - it is created for meeting the expenses on passengers amenities, labour welfare and on unremunerative railway projects etc.,

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1. Working expenses includes, expenses on administration, repair and maintenance and operating expenses and depreciation etc. see chapter
2. Gross receipt includes - receipts from passanger, goods traffic.
3. The amount paid as interest charges and contribution is governed by railway convention resolutions passed from time to time. See Appendix 1.
4. For shares of each shareholder in railway net earning. See chapter 2 page

Depreciation Reserve Fund - it is created for meeting the future railway requirement. Though, working expenses includes depreciation charges but still a portion of this net gain in further transferred to this fund for strengthening railway future requirements. However, the distribution of the surplus receipts is governed by the parliament in form of demand for grant.

GROWTH OF NET EARNING:

Table No. 1

Growth of net earning 1947-48 = 100

Year	1947-51	1951-56	1956-61
Gross earning.	123.78	162.49	220.50
Gross earning per train-mile	115.45	127.27	155.88
Working expenses	116.91	146.86	220.28
Working expenses per train mile	105.22	114.54	137.82
Net earning	184.66	302.41	444.06
Net earning per train mile	195.45	254.54	314.55

Source: Railway Board (Annual) Reports Vol.II, Statement No. 5 & 14

The regular increase in railway gross earning and the gross earning per train mile, clearly shows the increasing tendency in railway net earning and net earning per train mile. This increasing tendency leads us to further analyse the railway operating efficiency and administrative efficiency.

OPERATING RATIO

It is the ratio of 'operating expenses' to 'operating revenue' and is also known as a measure of operating efficiency.[1] In railway economics, the term operating expenses includes, administrative expenses, repair and maintenance charges, expenses on railway operation and the depreciation charges and thus it excludes interest charges; whereas the term operating revenue includes, the revenue from passenger and goods traffic and thus excludes miscellaneous income. Because, the miscellaneous income is the additional income to the operator for which nothing is spent for.[2] Therefore, the operating ratio is the incidence of railway working expenses on the railway traffic receipts. However, in ordinary course this ratio is worked out by including miscellaneous receipts which gives somewhat dissatisfactory results.

Here the low ratio shows excellent results of the railway operation, whereas the high ratio is regarded as a result of somewhat external conditions which are entirely beyond the control of administration. For example, in the time of business depression, the reduction of expenses seems somewhat impossible due to more or less fixed expenses not varying with the volume of traffic. Therefore, 70 per cent is regarded as 'normal' ratio.[3]

1. H.A.Finney & H.E.Miller,in 'Principles of Accountin -Intermediate has called the operating expenses and oper tin revenue as operating costs and sales revenue,pp.66-605.
2. 'Analysis of Financial Statement,'by Harry G.Guthmann,p.226, He has given the basis for calculating the ratio as:
Operating expenses + Cost of goods sold X 100 or in other words
Sales

conti...

In this way this ratio has great bearing with the railway rates and fare charges thereby to the finances. Because, under the condition of low ratio, any rise in rates and fares charges is regarded as to penalise the railroad users, otherwise, it indicates inefficiency in operation or it may due to some external conditions beyond control. However, the following table shows the operating ratio so worked out.

Table 2.

Operating ratio of railway working

(figures in average percentage)

Years	1947-51	1951-56	1956-61
General	93.41	90.61	89.41
Passangers+	-	98.60	102.30
Goods +	-	90.60	86.60

+ Figures for the year 1947-51 are not available.

Source: Railway Board(Annual)Reports,Vol.II,Statements No. 12,13 & 5.

This table shows that over all railway operating efficiency is regularly improving, because the declining trend is the indication of improvement of efficiency. Moreover, the ratio is too

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conti...

this ratio can also worked out by: $\frac{\text{working expenses X 100}}{\text{gross traffic receipts}}$.

5. Ibid.,pp. 356-357.

high from the normal due to high rate of depreciation charges governed by the convention resolutions. On the other hand it is also find out that the ratio for passanger services is declining while that of goods servâces is improving. This means that passanger services are running at a loss as being a specialised type of transportation, requiring special investment for proper facilities and management, namely, acting time schedules, speed, ample staff for handling the traffic and special equipment called for special expenses, while, speed regards special attention to the maintonance of the roadbed.[1] While such requirement are not so necessary for goods services, However, here too, the ratio is too high from the normal. Therefore, the data is further analysed on guage basis for both goods and passanger services. The following table shows the guage-wise distribution of operating ratio for goods and passanger services:

Table 3

Operating Ratio on Different Guages

(figures in percentage)

Year	Goods services		Passanger services	
	Broad guage	Metre guage	Broad guage	Metre guage
1947-51*	-	-	-	-
1951-56	82.64	117.72	97.96	111.31
1956-61	79.93	112.52	98.23	123.86

Source: Railway Board(Annual)Reports,Vol.II,Statement Nos.12,15,& 5, and Report of Committee on Transport Policy and Coordination 1961,p.64.

* Figures for the year 1947-51 are not available.

1. Harry & Guthman, op.cit., pp.526-527.

As per the above table it is clear that over all metre-guage section is always uneconomical, i.e., the working expenses are higher than the earning on this section both for goods and passanger services. While on the broad guage section of railways due economies are derived, i.e., working expenses are lower than the receipts of this section, and thus gives net revenue to railways. However, between both these services, namely, passanger and goods, greater economies are derived from goods traffic than the passanger on the broad guage. But for both services and guages, efficiency is increasing regularly. Therefore, it further leads to analyse the density of traffic and utilisation of rolling stock individually. The following table shows the density of passanger traffic in each class per mile per seat.

Table No. 4.

Density of Passangers per seat per mile

(Figures in average) [1]

Class	1947-51	1951-56	1956-61
Air-conditioned class:			
Broad guage	1	1	1
Metre guage	-	-	1
First class:			
Broad guage	21	84	54
Metre guage	6	3	6
Second class:			
Broad guage	14	6	8
Metre guage	41	21	13
Third class:			
Broad guage	64	33	27
Metre guage	70	39	26

1. Density of passanger per seat per mile is worked out on ..cont..

The table clearly reveals that for all classes except air-conditioned, class passanger's density of traffic per seat per mile is very high. But as regards different guages, density of passangers per mile is comparatively higher on broad guage than on metre guage section in first class only. While in other two classes density of passangers relatively high for metre guage. Similarly the following table shows the density of goods traffice in tons per wagon on each guage:

Table No. 5.

Density of goods traffic per wagon in tons

(Figures in average)[1]

Year	Broad guage	Metre guage
1947-51	81.7	75.5
1951-56	58.1	44.2
1956-61	66.6	41.7

Like the high density of passangers traffic over broad guage section, density of goods traffic per wagon is also high on the broad guage section than the metre guage section, due to greater

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cont..
the basis of figures of Railway Board(Annual)Reports,Vol.II, Statement Nos.10,12 on the assumption of :

$$\frac{\text{Passanger traffic of each class}}{\text{Number of seats in each class}} = \frac{\text{Density of passanger per class per}}{\text{Passanger lead of each class.}}$$

1. Density of goods traffic per wagon is worked out on:

$$\frac{\text{Goods traffic in tons}}{\text{Number of wagons in use}}$$

carrying capacity of broad guage wagons and also rapid industrialisation in the country over broad guage.[1] Similarly, the declining tendency in each year is due to great expansion of wagon stock under the developmental programmes. In this way, the density of traffic both of goods and passanger appears to be high on broad guage than the metre guage section of the railway system.

UTILISATION OF ROLLING-STOCK:

Table No. 6

Utilisation of Rolling - Stocks

(figures in percent average)[2]

Years	Passanger-coaches		Goods-wagons	
	Broad-guage	Metre-guage	Broad-guage	metre-guage
1947-51	69.9	95.5	57.8	49.7
1951-56	61.6	72.0	26.9	29.1
1956-61	54.6	48.8	50.8	27.4

1. Refer to articles published in 'Indian Railways' a monthly Journal.

2. The ratio is worked out for passangers on
$$\frac{\text{Total passengers density per seat}}{\text{Number of coaches per train X carrying capacity per coach}}$$
The data employed from 'Railway Board(Annual) Reports, Vol.II, Statement, Nos. 10 & 12.
For goods traffic on: $\frac{\text{Goods density per wagon}}{\text{Carrying capacity of a wagon}}$
The data employed from the same source from statement Nos.10 & 18.

The utilisation of the rolling stocks, i.e. coaches and wagons reveals that though the density of the passengers and goods traffic is more on broad-guage section than the metre-guage section of railways, however, the existing rolling stocks, i.e. passengers coaches and goods wagons, were utilized more on metre-guage section than the broad-guage section both in pre-planning years and in the years of First Five Year Plan. It is due to the carrying capacity of the rolling stock at the ratio of 4 : 3[1] between broad guage and metre guage, and also by the rotation of the stock back to the pit mouth. In the years of Second Five Year Plan, this position has changed due to wider expansion of rolling stock[2] and great impact of rapid industrialisation on broad guage than metre guage. Moreover, over all the utilisation of rolling stock for both services is on extensive line and thus it is declining regularly. The following table shows the utilisation of locomotives on the system.

Table No. 7

Utilisation of locomotives per unit per hour in miles[3]

(Figure in average)

Years	Passengers		Goods	
	Broad guage	metre guage	broad guage	metre guage
1947-51	13.7	11.9	7.2	7.0
1951-56	14.1	12.0	7.0	6.7
1956-61	15.0	11.8	6.6	6.4

1. 'Railway Board(Annual)Reports,Vol.II,Statement 23.
2. Refer to Second Five Year Plan project for railways,p.468.
3. This ratio is worked on: Traffic engine miles / Traffic engine hours
   Source of data: 'Railway Board(Annual) Reports,Vol.II,Statement Nos. 17 & 18(Including traffic,shunting and mixed trains).

Similar to the coaches and wagons, the utilisation of locomotives for both services too is on extensive lines. However, the utilisation of passengers locomotives is for more miles per hour than the goods on both guages.

In this way, it is apparent, that the high operating ratio is due to the utilisation of coach, wagon and locomotive stock on the extensive line. However, the use of the stock on extensive line has the shortcoming that most of the stock remain idle either for repair in workshops or at the big terminal stations. Thus such type of use of rolling stock has great bearing with the Railway's Finances'.

RATE OF RETURN ON CAPITAL:

Similar, to the operating ratio which is the incidence of operating expenses on the operating revenue, rate of return on capital is the incidence or the ratio of net receipts on the capital employed in the system. Here the high rate per is the reward of superior efficiency and a symbol of honest management. Therefore, this ratio has relation with the employment of personnels in the operation, and their output factor. The following table shows the growth of the ratio:

Table No. 8

Growth of rate of return on capital

(Figures in average)[1]

Years	Capital employed (in crores of Rs)	Net return (in crores of Rs.)	Ratio of return (in per cent)
1947-51	748.48	40.66	5.41
1951-56	862.95	55.61	6.22
1956-61	1,261.49	78.60	6.23

1. Source: Railway Board(Annual) Reports,Vol.II, Statement No.5.

It is find out here that the capital investment has regularly increased to 168.54 per cent by the end of 1960-61 and the net return has increased to 192.56 per cent. Thus the ratio too has improved during the period to 115.3 per cent.[1] However, over all the ratio looks to low in view of the large capital investment. Hence it requires further analysis of the personnals efficiency. Because, railways provide means of livelihood to more a million workers, and all are divided in two categories, namely, staff employed for open lines and for railway new construction. As regards the efficiency analysis, it can only be made for those employed in open lines. While the staff employed in the construction belongs to the contractor supervised by the railway staff. The following table shows the efficiency of staff in open lines:

1. Base : 1947-48 = 100.

Table No. 9

Efficiency of Staff in open lines 1947-48 = 100

(Figures in average)*

Years	Railway output	Staff employed	Output per worker
1947-51	118.6	100.9	117.8
1951-56	135.3	110.1	121.1
1956-61	175.5	127.8	137.3

*. Source: 'Railway Board(Annual) Reports,Vol.II, Statement No. 40-I, 12 & 13.

Though the efficiency of staff is low and is again on the extensive line. But it is increasing with the improvement in the railway output. However, the low efficiency is due to the higher rate of increase in staff employment by 26.7 per cent than the improvement in railway output by 48.0 per cent respectively. Hence, in view of the increase in railway output, out of the increased staff most of the staff looks in surplus, thereby giving overall low output per worker.

In this way, the low rate of return on capital is due to the various reasons, namely, differences in the railway operating efficiency of different sections, low efficiency in railway workers and extensive utilisation of the railway rolling stock etc.

CHAPTER - VI

DETRIMENTS OF RAILWAY EARNINGS AND EXPENDITURE

The previous analysis of Railway earning and its expenditure shows some interesting trends. This lead us to further analyse the inter-relationship between the variables and their components. Particularly, the gross earning and expenditure both are treated as function of factors such as national income per capita, density of traffic, average haul, industrialization etc., which directly effect the two. We have further investigated the position of different components in the gross earning and expenditure. The object of the later being the determination of place of each component in the total and their possible effect on the gross earning and expenditure.

Simple mathematical formulas are used to achieve the desired ends. In all the regression method of least square is followed. As there are more than one dependent variables in all the functions, multiple regressions are run throughout. The validity of the formula in many cases are also tested by simple and necessary testing techniques.

The data used relates to ten years in all cases, i.e. from 1950-51 to 1959-60 (both years inclusive). The necessary data is assimilated from the Railway Board Reports, most of which have already been referred to earlier. The indicators of other factors are formulated from various sources which have been referred to at suitable places. The period of ten years though not quite long for such a study, yet is not inadequate. We could have taken data for thirteen years, i.e. from 1947-48 to 1959-60, but it being full of events and we cannot have the correct picture of the situation for the present purpose and hence from the underlying calculations, first three years have been left out.

Before, we give the results of regression, it is worth while to briefly introduce the factors influencing the gross earnings in general. Passengers earning is assumed to be affected, mainly by:

1 - The improvement in the price level.

2 - Passangers traffic.

3 - Average distance a passanger travelled, i.e. average load.

Secondly, the goods earning is assumed to be effected by:

1 - Growth of industrial and agricultural production.

2 - Goods traffic.

3 - Average haul

4 - Price level

Thirdly, the Railway expenditure has been assumed to be effected by:

1 - The level of economic development.

2 - Total traffic[1]

3 - The average speed of trains.[2]

4 - The price level of the country.

Therefore, all these factors are apparently related with the dependent variables as well as among each other.

For purposes of quantifications, the three indicators in the first case were represented by income per-capita which is now generally accepted measure for the level of living, the average density of passangers per mile and average distance the passanger travelled calculated from the reports.

For the second case, the total national income is taken to indicate the growth in the over all production. The indicator is assumed to adequate represent the earnings in agricultural and industrial production, which is not so very realistic, because a substantial part in the total income is on account of other activities. The other two indicators are calculated from the reports. Price level is taken to isolate the effect of prices, if any and while sale price indices indicates this.

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1. The total traffic is calculated on the basis of:

$$\frac{\text{Passanger density x passangers earning + goods density x goods earning}}{\text{Total earning}}$$

2. The average speed is calculated on the basis of: $\frac{\text{Total Engine miles}}{\text{Total engine hours}}$

For expenditure, the influence of economic development is indicated by the total national income. The total national income as an indicator of economic development is certainly better than when it is used for agricultural and industrial production as in the second case. The other factors were represented by density of traffic per mile, average speed calculated from the reports and the whole-sale price indices, respectively.

In all these three functions, the impact of the Railways rates and fares is likely to be considerable. But because it is more significantly effected by political and economic factors, which are some-whate delebrate, and it is nor easy to quantify the changes in it, it has hot been taken into consideration in any of the above functions. It is hoped, that the substantial amount of unexplained variables in the dependent variables would be on account of the rates and fare policy.

The general form of the mathematical formula used in the present analysis is:

$$y = f \ (x_1, x_2, x_3, x_4 \ldots\ldots)$$

In all cases logerthmic fractions are taken, which beside from having many other advantages, directly give the elasticity of the dependent variables with respect to the independent one. In other words, the exponent of the independent variables are the elasticities. In logerthmic form, the general functions can be written as:

$$\log y = \alpha + \beta_1 \log x_1 + \beta_2 \log x_2 + \beta_3 \log x_3 + \beta_4 \log x_4 \ldots.$$

which is the same as:

$$y = A(x_1^{\beta_1} \times x_2^{\beta_2} \times x_3^{\beta_3} \times x_4^{\beta_4} \ldots\ldots)$$

while y is the depedent variable (gross earning or gross expenditure in our case) and xs the independent variables(i.e. the influencing factors described above or the components of gross earnings and expenditure), A is a constant and β_s are the exponents or elasticities.

RESULTS OF REGRESSIONS

The following four functions analysed are:

1 - relating passangers earnings with the influencing factors.

2 - relating goods earning with the influencing factors

3 - relating expenditure with the influencing factors

4 - relating expenditure with its components for 10 years.

The results for each are given below:

1. Passangers earnings and the influencing factors:

The factors, i.e. income per capita (x_1), density of passangers per mile (x_2) and average lead per pasanger(x_3), explain among themselves 76 per cent of the total variance in

passangers earnings. The values of β_1 and β_3 are significant at 5 per cent level of significance, as shown below:

Table No. 1

Results of regression on passanger earning

	α	β_1	β_2	β_3	R^2
Calculated ratio	13.5562	5.0572	- 1.8277	4.5000	0.7636
Standard error	-	0.1714	0.0550	0.4286	-
t - ratios	-	2.9505	- 3.3231	1.0499	-

The major influence on passanger earnings appears to be of the level of living, followed by average distance travelled. The negative influence of density per mile is perhaps explained by the high rate of fare at short distances and vice-versa. The value of β_2 is however not significant and hence not different from zero. The over-all relationship seems to be in line with the apriori expectations.

2. Goods earning and the influencing factors:

In this case the four functions, namely, total national output (x_1), price level (x_2), density of goods per mile (x_3) and

average haul (x_4) accounts for 93 per cent of the total variance. But total national output and average haul only are significant. The impact of other two factors are insignificant as shows below:

Table No. 2

Results of regression on goods earning

	α	β_1	β_2	β_3	β_4	R^2
Calculated ratio	0.4648	2.0158	0.0476	0.1060	-1.4166	0.9299
Standard error	-	0.0769	0.0176	0.0211	0.8889	-
t - ratio	-	26.2133	2.6592	5.0237	-0.1594	-

The negative influence of average haul is again perhaps due to the negative relationship between the freight rate and distance. Effect of price level and density of goods traffic is also positive.

3. Total expenditure and the influencing factors

The impact of the four independent factors are considerable. These are, national income (x_1), price level (x_2), total traffic(x_3)

and average speed (x_4). In other words, 91 per cent of the total variance in the total expenditure is explained by the four factors. The most important effect is of quantity of traffic β_2 followed by the level of economic development β_4. The calculated and tabulated values of β_s are given in the following table.

Table No. 5

Results of the regression on expenditure

	α	β_1	β_2	β_3	β_4	R^2
Calculated ratio	.8040	0.6711	-0.3968	0.7617	-0.4167	0.9064
Standard error	-	0.0476	0.1009	0.0348	0.2444	-
t - ratio	-	14.0987	- 3.9326	21.8879	-1.7050	-

Speed and the price level have negative influence. Speed too has negative influence is quite understandable because greater is the speed lesser is the expenditure and vice-versa. But the negative influence of price level is quite unexplained. Fortunately, the influence of these two factors are not significantly different from zero and hence may even be negative.

4. Expenditure and its components:

The total expenditure is broadly divided into:

a - expenditure on general administration, as x_1

b - expenditure on repair and maintenance, as x_2

c - expenditure on operation, as x_3

d - contribution to depreciation reserve fund as x_4.

The data for the ten years (except for the depreciation reserve fund)[1] has shown considerable consistancy and has enabled us to mathematically work out the relative position of each in the total expenditure. The result of regressions on total expenditure on general administration, repair and maintenance, operating expenses (contribution to depreciation reserve fund is not considered because it is not directly related with the total expenditure), as given below:

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1. The same is also evident from the unchanged figures for number of years. Refer to Railway Board Reports,Vol.II Statement No.30 (a).

Table No. 4

Regression on total expenditure and components

	β_1	β_2	β_3	R^2
Calculated ratio	0.8572	- 0.0741	0.6048	0.9026
Standard error	0.4215	0.1611	0.1978	-
t - ratio	2.0346	- 0.4600	3.0576	-

More than 90 per cent of the variance in total expenditure is explained by these three broad components. Among these, all are significantly different from zero. The most important item of expenditure being general administration, followed by operating expenses. The β_s co-efficients also broadly indicate the elasticity of the total expenditure with respect to the change in the components. It would be possible, for instance, to work out the total expenditure for the given changes in any two of the three components. Similarly, it would be possible to work out broadly the distribution of a given total expenditure (including the provision for depreciation reserve fund), into three broad components, namely, on general administration, repair and maintenance and operating expenses.

It may be argued that a given provision for depreciation reserve fund leads to a certain increase in the total expenditure

and hence, is related to the total expenditure. We, therefore, tried another regression where all of the four broad catagories of expenditure, namely, general administration(x_1), repair and maintenance (x_2), operating expenses (x_3) and depreciation reserve fund (x_4) were included. The results of the regression are given in the following table:

Table No. 5

Regression on Expenditure

	X	β_1	β_2	β_3	β_4	R^2
Calculated ratio	0.9870	0.2059	-0.4796	0.5796	0.2297	0.8194
Standard error	-	0.1204	0.0460	0.0566	0.0327	-
t - ratio	-	1.7101	10.4261	10.2403	7.0245	-

The explained variance is improved a little as compared to the earlier regression. Operating expenses remained the most important component. Second in importance becomes depreciation reserve fund. Further, expenditure on general administration becomes least important. Moreover, the co-efficient is not significant from zero as apparent from the comparison of the t - ratio.

In this way, the results of the regression analysis appears to be encouraging, especially because the values of the co-efficient are significant and not unexpected and also the unexplained variance in each case is very substantial. However, a little more refinement in the technique may be required for making these results useful for forecasting, for which such analysis is primarily done.

CHAPTER VII

RAILWAY INCOME DISTRIBUTION.

From the present railway working expenditure data, it is not possible to deflate the pure expenditure on different heads and the expenditure on employment. However, the present attempt is a consolidated one, showing the behaviour of employment expenditure for the whole railway system. The table given below shows the relative ratio of employment expenditure to the total railway working expenditure, because employment expenditure is a part of the railway working expenditure.

Table No. 1

Ratio of Employment Expenditure to Working Expenditure

(figures in average)

	Working expenditure (in Rs. crores).	Employment expenditure (in Rs.crores)	Ratio in per cent
1947-51	187.75	88.16	46.96
1951-56	231.44	134.84	58.27
1956-61	321.60	181.16	56.33

Source: Railway Board (Annual) Reports, Vol.II, Statement Nos. 5 & 40-II.

The ratio as worked out clearly shows that prior to planning in India less than half of the working expenses were incurred on the railway staff whether gazetted or non-gazetted employed on open lines, while the majore part covered the other railway operating expenses, maintenance expenses and depreciation. However, with the introduction of the planning for quick development of railway services, staff expenditure has increased to more than half of railway working expenses, due mainly to the increase in employment, scale of pay and dearness allowances and the other expenditure for their amenities etc. This leads to an reduction of expenditure on other heads of working expenditure. Therefore, the increasing tendency in employment expenses leads to analyse the behaviour of employment wages(income) income per-capita and their real wages. Moreover, the efficiency of staff has been previously analysed, while discussing the 'railways net income'.

SOME BASIC FEATURE OF RAILWAY EMPLOYMENT

Railway staff has been divided into two catagories, namely, staff in open lines and into new construction . As per

data available in reports, railway operating staff has been divided into three main catagories which are further subdivided as shown below:[1]

1 - First and second grade staff: This staff is equal in rank and scale of pay of the first and second grade staff of Government of India.

2 - Third grade staff: This has been further sub-divided as:

(i) Office Staff: this has been further sub-divided into:

(a) those who are drawing more than Rs.250/- per mennsum and

(b) those who are drawing less than Rs.250/- per mennsum.

(ii) Workshopr and artisan staff: this includes skilled, highly skilled, and skilled supervisors.

3 - Fourth grade staff: this is again sub-divided into two, namely,

(i) Office staff: this includes staff of third grade and fourth grade irrespective of pay.

(ii) Workshop and Artisan staff: this includes staff of third grade and fourth grade irrespective of pay.

However, for the study purpose the whole of the staff has been catagorised into three classes, namely, 1st and 2nd class or upper class employees who are drawing Rs.250/- and more per mensum; 3rd class or middle class employees, who are drawing below Rs.250/- to Rs. 60/- per mensum, plus other grade; 4th class or lower class employees, who are drawing Rs.60/- to Rs.30/- per mensum, plus other

1. This division of staff is as per Railway Board (Annual) Reports, Vol.II, Statement 40-II

grade. The following table shows the growth of staff, wages (income) and income per-capita.

Table No. 2

Growth of Staff Wages and Income Per-Capita 1947-48=100

Years	4th or Lower class			3rd or Middle class			1st & second upper class		
	N	W	I	N	W	I	N	W	I
1948-49	102.1	125.8	123.2	102.6	124.0	120.8	108.1	104.4	96.6
1950-51	91.6	176.0	186.0	112.6	166.1	147.5	128.3	92.8	81.1
1955-56	139.0	313.9	225.8	103.5	196.5	189.8	186.3	108.7	58.3
1960-61	148.3	388.6	264.3	128.1	293.1	228.7	275.1	166.9	60.7

N = number of employment; W = wages(income); I - income per-capita.
Source: Railway Board(Annual)Reports,Vol.II,Statement No.40-II

This table reveals that employment, wages and wages per capita all are increasing regularly for all grades of employees, except per-capita wage for upper grade employees, which regularly declines. In 1950-51, quantum of lower wages of upper class employees has declined considerably. In 1955-56, there is no decline in number of middle class employees as shown in the table, because as per data available, middle class employee's data includes the data of lower class 'Artisan staff' from 1947-48 till 1951-52, which is indivisible between 'Artisan and other staff' otherwise, there is a regular improvement in number of middle class employees.

The regular increase in employment is due to the rush of traffic caused by partition in early years; creation of new vacancies about one lakh under the Adjudicator's Award 1949 which Railway Board has reduced roughly to 50,000(34,500 for 4th class and 15,500 for 3rd class) and the additional staff requirements under the two five year plans to handle the increased traffic. Naturally, all these factors bound to increase in the quantum of staff for railway operation. Therefore, over all cost of staff has regularly increased for all class of employees. Although, inspite of these factors, other factors are also responsible for the rise in the cost of staff for all grades; namely, increased dearness allowances paid to employees on July 1,1949; June 1,1951 and July 1,1957 respectively; revision of scales done on the recommendation of two Central Pay Commissions 1948 and 1959 appointed by the Central Government; high rate of contribution made to the Provident Fund and the payment of gratuities in 1953-54 and 1954-55 respectively; large amount of arrears paid on account of implementation of Minimum Wages Act in 1959-60 etc.[1] Hence all these factors further made a regular increase in the cost of staff for all grades till the end of 1960-61.

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1. Railway Board (Annual) Report 1949-50, Vol. I, p. 71.

The decline in the quantum of lower class staff and wages of upper class staff in 1950-51, caused the pressure of job analysis made to assess the surplus staff on all railways and the retrenchment of 30,173 employees of all grade done in 1949-50. It seems that retrenchment of staff effects more on lower class than the upper class. In this way, the lower class staff has declined in 1949-50 to a great extent. Although in 1950-51, an improvement in the lower class staff was done but it cannot reach at the par of 1947-48. Therefore, the lower class staff has declined considerably in 1950-51. On the other hand, the decline in the wages of upper class employees was on the recommendation of the Central Pay Commission 1949, bringing thereby all the varying ranges of pay-scales at one single pay-scale and leave rules in 1950-51[1]. Moreover, this revised pay-scale of upper class employees further brings the distribution of income per-capita on a systematic line, i.e., reducing the income per-capita for upper class and increasing the income per capita for middle and lower class staff, regularly. This reduction of income per-capita for upper class continued till 1956-57, thereafter in 1957-58 due to re-distribution of posts income per-capita has improved considerably, and thus income per-capita for upper class employees improved considerably in 1960-61.[2]

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1. Railway Board(Annual)Report, 1949-50, Vol.I, p. 67.
2. Railway Board(Annual)Report, 1957-58,Vol. I, p. 93.

This change include the effect of prices and thus don't reveal the real changes in the wage-scale structure. With a view to obtain such a position we have deflated the current values with the help of the all India consumer price index. The determination of the real changes in wages is given below:

Table No. 3

Real-Wages and Wages per - Capita 1947-48=100.

Year	Real-Wages			Per-Capita Real Wages		
	4th	3rd	1st & 2nd	4th	3rd	1st & 2nd
1948-49	102.5	101.0	85.2	100.3	98.4	78.7
1950-51	137.6	130.0	72.5	145.5	115.4	56.5
1955-56	258.4	161.8	89.6	185.8	156.2	48.0
1960-61	247.7	186.7	106.4	168.4	145.7	38.7

Source: Railway Board(Annual)Reports,Vol.II,Statement 40-II, Consumer price index is taken on the base of 1949=100. 'The ratio worked out as $\frac{\text{Wages or wages per capita}}{\text{Index No.}}$

4th -4th grade staff, 3rd = 3rd class staff, 1st & 2nd - 1st and 2nd grade staff.

This table tells us that real wages and wages per-capita has regularly increased for 3rd and 4th grade staff, through out the period. For the behaviour of real wages and real per-capita wages for 1st and 2nd grade employees it should be mentioned that both are declining from 1947-48 except in 1960-61 when only the real wages have increased. This increase was due to the redistribution of posts in different grades done in 1957-58,

effecting only the wages.[1] However, the other variances in the table is due to changes made in reporting the data.[2]

In this way, it is found that in the sphere of income distribution, Railways have followed socialistic pattern to absorb the surplus staff on the recommendations of two Pay Commissions 1948 and 1959, Adjudicator's Award 1948 and job analysis made in each Railway system.

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1. op.cit., p. 2.

2. Railway Board(Annual) Report, 1947-48,Vol.I, p. 93.

CHAPTER VIII

RAILWAY FINANCE AND ROAD TRANSPORT

The air transport is of recent growth and for national needs. Although, in the present planning period wide expansion of air services has been made as an inland transportation, but still it is beyond reach of the general masses due to high fare charges and limited in operation. On the other hand, development of water transport as an inland transportation, is negligible except for coastal shipping wherever it exists in a limited form. Therefore, both these means being in limited operation do not much effect the railway's traffic and revenue both. However, the road transport may effect the railway traffic and revenue on the parallel routes with railways, covering about 24339 miles i.e. 70.2 per cent of the total route mileage in India, whereas, non-parallel routes are feeder to Railways.[1] Hence, in the present chapter efforts have been made to assess the extent of rail-road competition and its effect on railway finances.

DEVELOPMENT OF RAIL-ROAD TRANSPORT(1947-48-1960-61)

Under article 246 of the Indian Constitution, 'Carriage of passanger and goods by railway, sea and air, or by national highways

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1. 'The Committee on Transport Policy and Coordination,1959,p.121.

declared by law of the parliament in machanically propalled vassels, 'is under the control and management of Union Government whereas, the carriage of passanger and goods by road comes under the control and management of the State Governments.[1] In this way the division of means of transportations between State and Union Governments, gives absolute power to each for their development within their jurisdiction.

Under the control and management of the Union Government railway transportation,as has been mentioned previously, developed to a very large scale. For example, the capital-at-charge has increased by 205.14 per cent, income increased by 191.08 per cent and 334.9 per cent respectively under passanger and goods traffic, whereas the traffic for both has increased by 163.98 per cent and 191.99 per cent respectively, irrespective of enhanced fare and freight charges till 1960-61.[2]

However, the development of road transport under the control and management of State's government is divided into two spheres. In the first stage, the State governements have started nationalisation of passanger transport in their states[3], covering

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1. Entries Nos 22 to 31, 42,56 and 89 of list 1,(Union List) and entries nos. 13,56 to 59 of List II(State List), of Seventh Schedule of the Constitution of India.

2. Railway Board(Annual) Reports,Vol.II, Statement Nos 2(a),12 13.

3. This step was taken in number of States by amending the Motor Vehicle Act, applicable differently in each State.In U.P. this step was taken by amending the Motor Vehicle Act 1935,through the Act No.XI of 1948.

about 30 per cent of the passanger services. Under 30 per cent, the State governments have first covered most of those routes which are more paying and conjusted of traffic, whereas, less paying and less conjusted or Kachcha routes covering the rural areas left for the private operators. In this way most of the parallel routes with railway tracks come under the State management and control for playing their buses. But due to the limited means with the State governments, the policy of nationalisation underwent a slow progress in all states.[1] On the other hand, goods transportation remained exclusively into the hands of private operators. But due to the leinent licencing policy under section 63(1) of the Motor Vehicle Act - 1939, granting inter-state permits to motor operators and the introduction of diesal operated motor vehicles, both State road transport and the private operators started to cover long routes within the inter-state territories.[2]

But in the absence of road transport data for passanger and goods traffic, it is impossible to assess the role performed by road transport in the economy. Though, different agencies, namely, Indian Road Transport Development Association, Road Transport Reorganisation Committee 1959, Railway Board and the Committee on Transport Policy and Co-ordination(Secretariate), all have tried to

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1. Report of The Committee on Transport Policy and Co-ordination 1961, pp. 103-4.

2. 'Inter-State permits were granted on the counter signature of the State Transport authority of the respective states or by the receprocal agreement between the States', Ibid., p. 43.

estimate the role performed by road transport industry on the varying assumptions, namely, capacity of the vehicle, extent of utilisation of vehicle, mileage performed by each vehicle on an average per day and number of days in a year a vehicle utilised on an average etc.[1] But non of them could reach to the definite coordinated conclusion. Therefore, under such circumstances it is not easy to determine the extent to which the expansion of road transport is made at the cost of railways or to whate extent the traffic has been diverted from railways to roads. As regards the rail-road competition, it will be worth mentioning, that the problem of competition only exists for parallel routes with railways; whereas, on non-parallel routes motor transport acts as feeder to railways. Secondly, the nationalisation of passanger transportation by State governments coordinated the two services provided previously by private operators and the railways. Under the present planning, the Commission for some time had been pursuing with the State governments to transform their departmental road transport undertaking into a corporation to be set up under the Road Transport Corporations Act 1950, because corporation form of management will ensure safeguard against competition between them in future.[1] In this way, the problem of competition only exists for goods transportation between private operators and railways particularly on parallel routes. Therefore, to assess the competition between both these means analysis has been made on the

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1. Report of the Committee on Transport Policy and Co-ordination, 1961, p. 150.

2. Report of the Commitee on Transport Policy and Co-ordination, 1959, p. 105.

available rail-transportation data. However, it is difficult to get the rail transportation data together with the production data for most of the articles. Therefore, selected articles are taken for analysis. The following table shows the ratio of transportation for each modes into the production of the selected articles:

Table No.1

Relative position of rail-road transportation into production.

(figures in per cent)

Year/ Commodities	1947-51		1951-56		1956-61	
	Rail	Road	Rail	Road	Rail	Road
Iron and steel	157.0	-	144.7	-	149.4	-
Sugar	140.3	-	100.5	-	90.9	9.1
Maganese ore	97.2	2.8	90.9	9.1	90.6	9.4
Cement	94.0	6.0	87.2	12.8	97.8	37.5
Cotton manufactured	93.4	6.6	78.7	21.3	62.5	37.5
Coal	92.8	7.2	93.1	6.9	96.3	3.7
Paper and Board	88.1	11.9	78.5	21.5	94.7	5.3
Tea	86.8	13.2	93.1	6.9	88.0	12.0
Iron and Steel (ore)	82.3	17.7	83.4	16.6	91.7	8.3
Metallic ore	82.3	17.7	79.9	20.1	86.6	13.4
Provision	81.2	18.8	73.1	26.9	44.1	55.9
Jute raw	79.0	21.0	75.4	24.6	89.2	10.8
Cotton raw	72.4	27.6	84.3	15.7	69.3	30.7
Salt	55.6	44.4	58.1	41.9	53.7	46.3
Vegetable oils	-	-	52.3	47.7	46.6	53.4

Source: Railway Board (Annual) Reports, Vol.II, Statements Nos.29 and Annual Volume of Abstract of Statistics (Government of India publication).

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Lac	-	-	52.3	47.7	46.6	53.4
Jute manufactured	31.9	68.1	27.8	72.2	24.8	75.2
Oil Seeds	28.5	71.5	28.4	71.6	23.6	76.4
Foodgrains	13.7	86.3	13.7	86.3	16.1	83.9
Sugarcane	4.9	95.1	5.7	94.3	4.5	95.5

This table tells us that for most of the articles railway traffic is declining whereas, the road traffic is improving due to freight rates for the short distance traffic attracted by the roads for quick delivery. However, still then out of the eighty per cent of the articles as mentioned more than fifty per cent of the production is carried by railways and the same is either improving or is constant. Thus, a little part of the total traffic is left out for the road transport. On the other hand, for rest of the twenty per cent of the articles of which more than fifty per cent of the traffic is carried by road and a very little part is left for the railways. In this way, railways over all carry a major part of the production and a very little is left for the roads. However, this clue now leads to assess the length of haul for movement of articles and vehicles too, for both means of transportation. The following table shows the movement of vehicles on distance basis on the selected dense traffic routes suggested by Railway Board.

Table No. 2

Movement of Rail-Road vehicles on Selected Routes

Distances (miles) Routes	DMR		DKR		PCR		BBR		MBR	
	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road
1 - 50	85.9	14.1	71.9	28.1	83.8	16.2	92.5	7.5	62.9	37.1
51 - 100	63.2	36.8	39.8	60.2	51.0	49.0	60.8	39.2	50.6	49.4
101 - 200	40.2	59.8	23.5	76.5	30.3	69.7	42.8	57.2	33.8	66.2
201 - 300	20.9	79.1	12.7	87.3	8.0	92.0	23.2	76.8	21.4	78.6
301 - 500	1.1	98.9	3.0	97.0	5.0	95.0	8.5	91.5	6.6	93.4
501 - 1000	0.1	99.9	1.5	98.5	1.9	98.1	4.3	95.7	0.9	99.1
1001 and above	0.0	100.0	0.1	99.9	0.2	99.8	0.2	99.8	0.2	99.8

DMR: Delhi-Amritsar Route: DKR - Delhi-Kanpur route; PCR - Patna-Calcutta route; BBR - Bombay-Banglore route; MBR - Madras-Banglore route.

Source: The Report of 'The Committee on Transport Policy and Co-ordination 1959, p. 153.

This table shows that movement of railway vehicles are less for short distances about 150 miles, while beyond this distance movement regularly improved and reaches to cent per cent over 1000 miles. On the other hand, movement of road vehicles for the aforesaid distance of 150 miles is more, regularly deteriorated for the distance beyond, till it almostly over come to zero.

In this way it is find out that railway transport is mostly preferred for long and very long distances; whereas , for short and very short distances road vehicles are mostly preferred, However, to assess the movement of articles for varying distances further analysis has been made of the traffic for selected articles on these routes between rail-road transportation. The table(no.3) shows the results. The table again shows the same results that out of the total traffic of these selected articles on the routes, major portion of the traffic is lifted by the railways beyond 150 miles and the minor portion is left for the road vehicles. Therefore, it can be said that road services are mostly preferred for the short distances upto 150 miles than the railways, whereas, beyond this distance, railway services started preferring more than roads. In this way it can be argued that railway competition only exists uppo 150 miles or to short distance traffic whereas over long distance traffic railway has monopoly to carry. However, to eleminate the problem, coordination of both means is the only remedy for cure.

Though, in western countries; namely, United Kingdom, Canada United States, Western Germany, France, Itlay, Australia etc., number of measures are adopted to coordinate both means of transportations. These are: adjustment of freight rates for both services, neutral fiscal legislation, elemination of direct and indirect subsidies,

Table No. 3.

Percentage of Total Traffic Moved by Rail-Road.

Distance in Miles: Articles	0 - 50		51 - 100		101 - 200		201 - 300		301 - 500		501 - 1000		1000 and above	
	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road
Sugar	5.8	94.2	22.3	77.7	45.0	55.0	78.8	21.2	98.4	1.1	99.7	0.3	-	-
Coal	0.3	99.7	4.4	95.6	30.0	70.0	75.2	24.8	99.9	0.1	-	-	-	-
Iron and Steel	3.3	96.7	15.5	84.5	40.4	59.6	66.1	33.9	86.5	13.5	96.0	4.0	-	-
Jute & Cotton	5.7	94.3	19.0	81.0	30.8	69.4	31.2	68.2	76.6	23.4	86.1	13.9	99.6	0.4
Raw	7.6	92.4	16.7	83.3	27.7	72.3	50.5	49.5	85.0	15.0	97.2	2.8	-	-
Foodgrains	9.7	90.3	31.0	69.0	68.8	32.2	91.3	8.7	98.1	1.9	99.9	0.1	-	-
Mineral oils	1.2	98.8	13.3	86.7	38.4	61.6	65.9	34.1	99.2	0.8	99.9	0.1	-	-
Timber	0.2	99.8	13.3	86.7	33.1	66.9	59.1	40.9	-	-	98.5	1.5	-	-
Provision	2.1	97.9	13.4	86.6	34.1	65.9	53.8	46.2	82.0	18.0	94.8	5.2	-	-
Finished products	3.6	96.4	10.9	89.1	35.8	64.2	63.0	37.0	82.7	17.3	87.5	12.5	97.8	2.2

Source: The Preliminary report of the Committee on Transport Policy and Co-ordination 1959, p. 154.

integration of transport services and coordination through suitable organisation and regulation of both means.[1] But under the present constitutional bottleneck, it is not possible to implement any of the measure for coordination of both services. Because, as previously mentioned, that railway services are controlled and managed by an independent department of Government of India whereas, the road transport is managed and controlled by the State Governments under Motor Vehicle Act 1939 and as amended from time to time. Under this Act, an InterState Transport Commission was constituted for the purpose of developing coordinating and regulating the operation of road transport vehicles in respect of inter-state routes. In actual practice, it is find that these State Governments have never consulted the said Commission for allowing the permits on inter-state routes, issued under the reciprocal agreement between States. Therefore, such an existing arrangement stipulated under law further creats peculiar constitutional difficulty into the problem of coordination between rail-road. However, Government of India, has in 1958 appointed a high level Council, namely, 'The Development Council' consisting of experts of every branch, to advise on all matters relating to coordination between rail-road.[2]

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1. Ibid., pp. 81-102.

2. The Preliminary Report of: 'The Committee on Transport Policy and Co-ordination, 1959, p. 105.

As regards the personal observation into the rail-road competition it is argued, that development of road transport is of recent growth since first world war, whereas the development of railways is much prior from 1853. However, under the present planned development both means have received an opportunity to develop into their own spheres, secondly, Railway Freight Structure Enquiry Committee has also mentioned in its report 'to discourage traffic over short distance'[1]. Thus, it cannot be said that there is competition between both. The reality is this, that under the planned development traffic has increased to a great extent which is beyond the reach of both to carry. But as the production of motor vehicles improved the movement of goods, as mentioned, will go up steadily and thus in long run a time will come when the road transport will start competition with railways.

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1. Report of the Freight Structure Enquiry Committee, 1957, p.25.

CHAPTER IX

AN APPRAISAL OF FOURTEEN YEARS OF INDIAN RAILWAY FINANCE

In the foregoing chapter an attempt has been made to analyse various aspects of financial statement of Indian Railways since independence of the country. Whatever observations are derived from the analysis are summarised below

Among the various modes of inland transportations, namely, road, water and air, significance of the railway transportation is quite apparent because the growth of the other means of transportations is either recent one or negligible in comparison to railways. On the other hand, with the large carrying capacity railways have helped to a great extent in country's economic development by handling large volume of traffic in the country. This is reflected, for instance, in the regularly increasing income from railways during the period of our study.

Railway income acquired mainly from two sources, namely, goods and passengers traffic. Besides these railways have income from miscellaneous resources namely, demurrage, penalties, schools, telegraphs etc., which is only 3 per cent[1] of the total railway income. Moreover, the increase in the railway income is to a great extent due to charging regularly high rates and fares[2] from the

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1. Vide chapter III table no. 1.

2. vide chapter II

traffic carried by the railways. This increase in the rates and fares is done in part, with a view to earn an additional revenue from the traffic, to meet the developmental expenditure on railways under the five year plans.

As regards the goods income, it has been observed that it has regularly increased partly as a result of the increase in traffic[1] by the rapid agricultural and industrial development and international trade under the two Five Year Plans. On the other hand, it has also been observed that income increases at a faster rate than the traffic, which is due to the high freight charges from the articles carried by railways. However, when the hauls of different articles have been estimated on the basis of freight income and traffic it is found that hauls of most of the articles are declining,[2] and railways are not able to earn revenue equal to the freight of that article per ton per mile.[3] On the over all basis haul has negative relationship with the goods income[4].

Similarly, the passanger income has regularly increased due to a increase in the traffic which in turn, has been due to various causes, viz., migration of citizens from one dominion to another,

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1. Vide Chapter III table no. 2.
2. Vide chapter II table no. 2
3. Vide Chapter III table no. 4.
4. Vide Chapter VI table no. 2.

Korean War, concessional tickets issued by the different railways etc. But it is found that out of the total passenger income the earning from the third class passengers, who are either of low income group or poor persons, have contributed more than the higher classes of passengers. The percentage share of each class, viz., Air-Conditioned, First, Second, Air-Conditioned Third and Third, is 0.5, 6.0, 4.8, 0.2 and 88.1 per cent respectively.[1] Some of the increase in passenger income is again achieved by the regularly raising the fares. In this regard it is observed that the incidence of the rise in fare rates have been relatively more for the third class passengers. Thus, they have sacrificed more of their income than the upper class passengers,[2] because the marginal utility of money is more to poors than the rich. Later on, when the passenger load is again estimated on the basis of fare, income and traffic it has been further found that average passenger lead for upper class passengers is high but declining or it is too short at 29.2 miles,[3] and thus the passengers density per mile has negative relationship with the passenger income.[4] Therefore, it is find that the passenger services, requiring more investment on time schedules, speed of trains, ample staff for handling the traffic and other special equipments etc., is not paying.[5] In this way

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1. Vide Chapter III table no. 5.
2. Vide Chapter II table no. 8.
3. Vide Chapter II table no. 9.
4. Vide chapter VI table no. 1
5. Vide Chapter V table no. 2.

over all railway income from passenger and goods traffic has regularly increased on the basis of high rates and fares charges from the increased traffic, the high charges, however, have discouraged the traffic to move to long distances.

The increase in the railway income by the increased traffic, on the other hand forced the expenditure to increase. The expenditure is divided into two, viz., capital and working expenditure, and both are regularly increasing to meet the increasing demand. But in the absence of the proper cost data the economies of cost cannot be worked out. As regards the capital expenditure, it has been seen that major part of it is met out of the railways own earnings and from the general revenue,[1] while the deficiency is covered by outside borrowings both on railway's account and on general revenue account. In this way the capital-at-charge has increased by 63.5 per cent by the end of 1960-61 as compared to 1947-48[2]. However, the growth of working expenditure shows that though it has increased but the operating expenses and the expenses on repair and maintenance have increased in close compliance to each other at faster rate whereas the expenses on general administration has increased at a very slow rate.[3] However, these findings are further supported by calculating the transportation ratio, i.e. ratio between working expenses and the total railway traffic.[4]

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1. Vide Chapter IV table no. 2 & 4.
2. Vide Chapter IV table no. 4.
3. Vide Chapter IV table no. 6.
4. Vide chapter IV table no. 7.

The faster rate of increase in repair and maintenance expenditure is due to the high cost of railway material and the staff. The changes in the depreciation reserve fund have also been rapid. These have been due to the frequent changes in the Railway Separation Convention Resolutions passed in 1949, 1954 and 1959 respectively.[1]

The railway net earnings too has regularly increased.[2] However, the analysis shows high ratios. For example, the operating ratio indicates that the expenditure on passenger traffic is more than the receipt thereof.[3] According to guage, it is further find that metre guage is more expensive than the broad guage.[4] These unhappy results are due to ticketless trayell, huge wastage over passanger's amenities and the concessional tickets etc., inspite of the number of checks leveled by railways to economies in expenditure, but still railways are not a position to control it.

On the other hand, operating ratio for goods services shows a favourable results, i.e., they show a considerable net earnings.[5]

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1. Vide Appendix No. 1.
2. Vide Chapter V table no. 1
3. Vide Chapter V table no. 2.
4. Vide Chapter V table no. 3
5. Vide Chapter V table no. 2.

But according to the guage it has been find that greater economies are obtained on broad guage than the metre guage.[1] It seems partly because most of the industries are established near the broad guage and thus the movement of traffic is more on this guage.

Later on to find the reasons for high operating ratio, the analysis for the utilisation of rolling stock is done. This analysis shown poor results.[2] Because out of the total rolling stock on the line, passangers coaches - 6.48 per cent on broad guage and 5.19 per cent on metre guage and goods wagon 3.22 per cent on broad guage and 4.52 per cent on metre guage are daily awaiting repairs in railway workshops.[3] While a large number of rolling stock is kept in reserve for emergency demand or delayed in empty movement to the desired destination. Similarly, in case of locomotives, it has been seen that their usages too is low in view of the capacity of the locomotive.[4] Further the test of the rate of capital return which depends on the efficiency of staff employed in open line railways shows that out-put per worker is very low.[5]

While railway expenditure is increasing regularly due to inefficiency of railway working personnels, it has been further observed that the income distribution is getting more equal or on

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1. Vide Chapter V table no. 5.
2. Vide Chapter V table no. 6
3. Vide Railway Board(Annual) Report 1960-61,Vol.II Statement No.
4. Vide Chapter V table no.7
5. Vide Chapter V table no. 9.

socio-economic line.[1] As regards, the problem of rail-road competition, it is seen that under the present constitutional diffions, the development of the means of transportation under the State and Central Governments, is on sound line and both are handling adequate traffic whatever they get. Because under the planned economic development traffic both of passanger and goods have increased more than development of railways and roadways put together to carry it.

Now the problems before railways are: repayment of loaned capital which is about Rs. 153.81 crores and to improve their own resources for the future developmental requirements. Therefore, in the light of the past railway workin; the present railway policy requires major internal modifications on the commercial-cum-public utility lines. The following lines may be suggested:

As regards the passenger services, it is suggested that the passanger classification be reduced to minimum classes and if possible to one class as finds in the Janta trains. The experience shows that the modern Janta trains are more comfortable to the passangers with low fares and with full travelling facilities, whereas on the other hand it has been seen that by the rise in income passangers are prefering more comfortable journey.

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1. Vide Chapter VII table nos. 2 & 3.

However, for fixing the fares it is further suggested that the fares must be on fast and slow trains with extra charges for sleeping berths. According to this method, not only the revenue will increase but also solve the over crowding in trains and bring economy into different types of expenditure on passenger traffic. However, it will also attract additional traffic over railways. To meet out this additional demand of railways, it will be desirable to put additional passengers rolling stock on the line either in form of long trains or additional trains.

Similarly, for goods traffic, experience shows that the present long list of classification of articles hinders not only in quick movement of traffic but also in separate invoicing, and for this a large staff is equiped at the stations. Therefore, it is again suggested to be reduced to minimum and say one each for, foodgrains, raw material, semi-finished products, finished products and delicate articles etc., besides separate charges for wagon load scales, viz. open wagons, covered wagons and special wagon like tank and refregiration wagon etc. for all articles. For the basis of freight it is further suggested that the freight must be on slow and fast movement of traffic separately. However, according to these suggested changes, it is well apparent that it will help in improving the efficiency and will be much helpful for quicker movement of traffic.

The present accounting, which is based on old technique for budgetory control of railway expenditure, further needs modification on cost accounting technique. Such type of accounting will help in working out the economies of large scale production. To further economise railway expenditure it is suggested that the use of rolling stock should be further improved. By doing this so, there will be economy in expenditure also the existing rolling stock will be utilised on intensive way. The suggested measure is the inter-zonal organisation be formed which later divided into the regional organisations of a limited number of stations. Through this measure there will be a easier watch over the empty rolling stock movement and also on the surplus stock with the stations. However, on the other hand, more express trains, improvement in speed, use of mechanical devices for loading and unloading the wagons in dense traffic stations or otherwise night shifts on other important stations, remodelling of yards, doubling or electrification of convertin- the metre guage lines into broad guage are necessary. The improvement of workshop efficiency is also needed and they should be provided with modern tools so that minimum number of rolling stock be awaited for repairs. Moreover, in the present railway planned development most of these measures are adopted but still there is a great scope for further expansion.

The history of railway financial organisation shows that year after year the amount of interest and of dividend to general revenue went on increasing regularly,and which was justified in view of the past railway working. In the present time when the railways are State owned and con.rolled, the payment of dividend to general revenue is like the payment of additional tax by the general tax-payer to Central Exchequer. While it is seen that railways rates and fares,too are a good source of imposing tax and thereby revenue from the railway users. However, this dual tax policy creats an additional tax burden over the railway users. Therefore, in order to lightening the rates and fares burden it is suggested that the payment of dividend to general revenue be suspended.

As regards the railway employment effects finances considerably, it is most desirable to improve the efficiency of the staff. Though under railway management training schools are running for the training of the new personnel, it is desirable to introduce some advance courses into these schools so that the newly employed staff of all grades must havethorough knowledge of railway economics, statistics and the law etc.

Though railways have adopted number of measures to eradicate the revenue leakage but such leakage still remain in large measures at every branch of railway services.

Therefore, it is further suggested that such railway system shall announce reward to be given to those who help railways in detecting the defaulters. On the other hand surprise checks be made by the railway officials for removing the corruption.

APPENDIX No. 1

(1) 'ABSTRACT OF RAILWAY CONVENTION RESOLUTION 1924'

" This Assembly recommends to the Governor General in Council that in order to relieve the general budget from the violent fluctuations caused by the incorporation therein of the railway estimates and to enable railways to carry out a continuous railway policy based on the necessity of making a definite return to general revenues on the money expended by the State on Railways.

1 - The railway finances shall be separated from the general finances of the country and the general revenues shall receive a definite annual contribution from railways which shall be the first charge on the net receipts of railways.

2 - The contribution shall be based on the capital at charge and working results of commercial lines and shall be a sum equal to one per cent on the capital at charge of commercial lines(excluding capital contributed by companies and Indian States) at the end of the penultimate financial year plus one-fifth of any surplus profit remaining after payment of this fixed return, subject to the condition that, if in any year railway revenues are insufficient to provide the percentage of one per cent on the capital at charge, surplus profits in the next or subsequent years will not be deemed to have accrued for purposes of division until such deficiency has been made good.

The interest on the capital at charge of, and the loss in working, strategic lines shall be borne by general revenue and shall consequently be deducted from the contribution so calculated in order to

arrive at the net amount payable from railway to general revenues each year.

3 - Any surplus remaining after this payment to general revenues shall be transferred to a railway reserve, provided that if the amount available for transfer to the railway reserve exceeds in any year three crores of rupees only two-thirds of the excess over three crores shall be transferred to the railways reserve and the remaining one-third shall accrue to general revenues.

4 - The railway reserve shall be used to secure the payment of the annual contribution to general reveneues; to provide, if necessary, for arrears of depreciation and for writing down and writing off capital; and to strengthen the financial position of railways in order that the services rendered to the public may be improved and rates may be reduced.

5 - The railways administration shall be entitled, subject to such conditions as may bep prescribed by the Government of India to borrow temporarily from the capital or form the reserves for the purposes of meeting expenditure for which there is no provision or insufficient provisions in the revenue budget subject to the obligation to make repayment of such borrowings out of the revenue budgets of subsequent years.

(2) 'ABSTRACT OF CONVENTION RESOLUTION 1943'

The Legislative Assembly on March 2, 1943 passed the following resolution:

" Whereas it has been found that the Convention, which was adopted under the Assembly Resolution, dated September 20, 1924, has not achieved these objects, this Assembly recommends to the Governor General in Council that:

1 - for the year 1942-43 a sum of Rs.235,52 thousands shall be paid to general revenue over and above the current contribution due under the Convention,

2 - from April 1, 1943, so much of the convention as provided for the contribution and allocation of surpluses to general revenues shall cease to be in force,

3 - for the year 1943-44, the surplus on commercial lines shall be utilised to repay any outstanding loan from the depreciation fund and thereafter be divided 25 per cent to the railway reserve and 75 per cent to general revenues, the loss, if any, on strategic lines being recovered from General Revenues, and

4 - for the subsequent years and until a new convention is adopted by the Assembly, the allocation of the surplus on commercial lines between the railway reserve and general revenues shall be decided each year on consideration of the needs of the railways and general revenues, the loss, if any, on strategic lines being recovered from general revenues".

'ABSTRACT OF CONVENTION RESOLUTION OF 1949'

The constituent Assembly of India(Legislative) on December 21, 1949 passed the following resolution:

" This Assembly, after considering the recommendations of the Committee appointed by it in April, 1949 to review the Convention relating to the separation of railways from general finance which was adopted under the Assembly Resolution, dated September 25, 1924, and in supersession of that and all other previous resolutions on the subject, resolve:

1 - the railway finance shall continue to remain separate from general finance;

2 - that the general tax-payer shall have the status of the sole shareholder in the railway undertaking;

3 - that on the capital invested out of the general revenues in the railway undertaking as computed annually, general revenues shall receive only a fixed annual dividend;

4 - that for period of five years, commencing from 1950-51 that annual dividend shall be a sum calculated at the rate of 4 per cent on the capital invested provided that no dividend shall be payable on the capital invested out of the general revenues in unremunerative strategic lines;

5 - that a Committee of the House shall reveiw the rate of dividend towards the end of the aforesaid period and suggest for the year following if any adjustment considered necessary, having regard to the revenue returns of the railway undertaking, the average borrowing rate of government and any other relevant factors;

6 - that the existing railway reserve shall be renamed the Revenue Reserve Fund andutilised primarily for maintaining the agreed payments to general revenue and for making up any deficit in the working of the railways:

7 - that a Development Fund shall be constituted for financing expenditure for the following purposes:

a) passanger amenities

b) labour welfare, and

c) railway projects which are necessary, but unremunerative;

8 - that for meeting the cost of replacement and renewal of assets, the Depreciation Reserve Fund shall receive, for the next five years in minimum contribution of Rs.15 crores per annum chargeable to the working expenses of the undertaking;

9 - that the railway surplus shall be available for distribution amongst, the Revenue Reserve Fund, the Development Fund, and Depreciation Reserve Fund to the extent the last-named needs strengthening over and above the minimum annual contribution;

'ABSTRACT OF CONVENTION RESOLUTION OF 1954'

The following Resolution was passed by the Lok Sabha at its sitting on Thursday, the 16 December 1954 then adopted by Rajya Sabha on 21 December 1954:

" That this House approves the recommendations contained in the Report of the Committee appointed to review the rates of dividend at present payable by the RailwayUndertaking to General Revenues as well as other ancillary matters in connection with the separation of Railway Finance from General Finance, which was presented to Parliament on 30 November 1945".

1 - It would be advantageous from all point of view to express the rate of dividend in terms of a percentage on the Capital-at-charge and the amount paid annually through a fixed rate of dividend inclusive of the element of interest.

2 - The present rate of dividend shall remain unaltered for another period of 5 years. However the Committee feel that in the matter of calculation of the Capital-at-charge and arriving at the total of the dividend payable, some minor adjustments are called for.

3 - The element of over-capitalization should be precisely assessed by the Railway Board and on that portion of the loan capital, the Railways shall pay the dividend at the rate equivalent to the average borrowing rate charged by the Government of India to Commercial Departments from year to year.

4 - The dividend on the Capital-at-Charge of new lines should be computed at a lesser rate, viz., the average borrowing rate charged to commercial departments and a moratorium should be granted in respect of the dividend payable on the Capital invested on the new lines during the period of construction and upto the end of the fifth year of their opening for traffic, the deferred amount being repaid from the six year onwards in addition to the current dividend out of the net income of the new lines.

5 - The annual contribution to the Depreciation Reserve Fund which had been maintained at a level of Rs.30 crores during the five years period ending the 31 March 1955 should be raised to Rs.35 crores during the next quinquennium.

Note: The contribution to this Fund for five years commencing from 1955-56 was later increased from Rs.35 crores to Rs.45 crores with the approval of the Parliment.

6 - The Committee recognise that the appropriation to the Development Fund and the solvency of the Fund are dependent on the availability and the size of the surplus, while the provision for depreciation should be based on the life of the assets, and their replacement on the actual conditions which cannot be deferred if their earning potential is to be maintained. They, therefore, feel that the replacement of these assets should bear no relationship with the ultimate loss or gain of the Undertaking but should be met out of the Depreciation Reserve Fund.

7 - The Committee are in favour of extending the scope of the Development Fund so as to include amenities for all 'users of Railway transport', such as improvement to goods sheds, loading and unloading plateforms, waiting sheds for the trading public, etc., which they consider as absolutely essential and recommend the continuence of the present practice of earning a minimum of Rs. 3 crores per annum on this account.

8 - In the event of the Development Fund not being in a position to meet the programme of expenditure chargeable to that Fund from its own resources, money should be advanced from General Revenues to the Railways for utilisation on those Projects or Works which are of a developmental nature. Such advances should be treated as Temporary Loans to the Railways and will not be added to the Capital-at-Charge on which 4 per cent dividend is payable annually. The Railways will pay interest on this loan to General Revenues at the average borrowing rate chargeable to Commercial Departments. It shall, however, be open to the Railways to repay this loan in instalments, if necessary, from accretions to the Development Fund in more prosperous years and thus liquidate the debt and the interest liability thereon.

CONVENTION RESOLUTION 1959

The following resolution was passed by the Lok Sabha at its sitting on Tuesday, the 28 April 1959:

RESOLUTION

"That this House resolves the period for the continuance in force of the recommendations of the Railway Convention Committee, 1954 governing the arrangements between Railway Finance and General Finance which were approved by this House by a resolution adopted on the 16 December, 1954 be extended by one year upto the 31 March 1961"

The resolution was adopted in the Rajya Sabha in the following form on the 8 May 1959:

"That this House resolves that the period for the continuance in force of the recommendations of the Railway Convention Committee 1954 approved by this House by a resolution adopted on the 21 December 1954, be extended by one year upto 31 March 1961"

APPENDIX - 2

PASSANGERS FARE PREVALENT TILL 1947-48

TABLE NO. 1

Pies per passanger per mile

Railways	First Class	Second Class	Inter Class (Mail)	Inter Class(Ordinary)	Third class(Mail)	Third Class(Ordinary)
1.Bengal-Assam Railway						
i)Assam-Bengal Zone	18 pies for any distance	-	5 pies upto 300 miles plus 4 pies beyond		4 pies upto 300 miles plus 3.5 pies beyond	
ii)East-Punjab zone	24 pies upto 150 miles 18 pies beyond	15 pies upto 150 miles 10 pies beyond	5 pies upto 300 miles plus 4.5 pies beyond		3.5 pies upto 300 miles plus 2 pies beyond.	
2.Bombay-Baroda & Central Indian Railway	24 pies upto 300 miles 18 pies beyond	12 pies upto 300 miles 9 pies beyond	6 pies upto 300 miles 5 pies beyond	5 pies upto 150 miles 4 pies beyond.	4.5 pies upto 50 miles 4.0pies upto 150 miles 3.75 pies upto 250 miles 3 pies beyond.	3.75 pies upto 50 miles 3.25 pies upto 150 miles 3.0upto upto 250 miles 2.75 pies beyond.
3.Bengal-Nagpur Railway	24 pies upto 300 miles 18 pies beyond	12 pies upto 300 miles 9 pies beyond	7 pies upto 300 miles 5 pies beyond	5 pies upto 300 miles 3.5 pies beyond	4.5 pies upto 300 miles 3.5 pies beyond.	3.5 pies upto 300 miles 2.5 pies beyond.
4.East India Railway	24 pies upto 300 miles 15 pies beyond	12 pies upto 300 miles 9 pies beyond.	5.5 pies upto 300 miles 4.0 pies beyond.	5.5 pies upto 300 miles 4.0 pies beyond.	3.5 pies upto 50 miles 3.25 pies upto 250 miles 2.25 pies beyond.	3.5 pies upto 50 miles 3.25 pies upto 250 miles 2.25 pies beyond.
5. Madras-South Maharatha Railway	24 pies for any distance	12 pies for any distance	6 pies for any distance	6 pies for any distance	4.5 pies upto 50 miles 4.0 pies upto 200 miles 3.5 pies beyond	4.0 pies upto 50 miles 3.5 pies upto 100 miles 3.0 pies upto 200 miles 2.5 pies beyond.
6. Great Indian Peninsula Railway	24 pies upto 300 miles 18 pies beyond	12 pies upto 300 miles 9 pies beyond	7.5 pies upto 300 miles 6.0 pies beyond.	6.0 pies for any distance.	5.0 pies upto 50 miles 3.0 pies beyond	4.0 pies upto 50 miles 3.0 pies beyond.
7.North-Western Railway	24 pies upto 300 miles 18 pies beyond	12 pies upto 300 miles 9 pies beyond	5.5 pies upto 50 miles 4.75 pies upto 250 miles 3.75 pies beyond	5.5 pies upto 50 miles 4.75 pies upto 250 miles 3.75 pies upto beyond.	3.25 pies upto 200 miles 2.25 pies beyond.	
8. Oudh-Tirhut Railway						
i) E.& N.W.Railway	18 pies upto 150 miles 12 pies beyond	9 pies upto 150 miles 6 pies beyond	4 pies for any distance	4 pies for any distance	-	2.5 pies upto 50 miles 2.0 pies upto 300 miles 1.25 pies beyond.
ii) R.& K.Zone.	56 pies for any distance	15 pies for any distance	-	-	-	-
9. South Indian Railway	24 pies for any distance.	12 pies for any distance.	7.5 pies for any distance.	-	4.0pies upto 300 miles 3.5 pies beyond	3.5 pies upto 50 miles 3.0 pies upto 300 miles 2.5 pies beyond.

Source: Passanger Fare and Rates for other coaching Traffic on Indian Railways, Published by Ministry of Railways, on March 1961, This volume is known as 'World Bank Bulletin'.

APPENDIX - 8

[illegible] No.2

PASSENGER FARES REGULATION SINCE 1947-48 TO 1960-61

(piece per passenger per mile)

Year	Air-conditioned class	First class/ Class I	Second class special	Second class Mail	Second Class ordinary/II	Inter Class Mail	Inter class ordinary	Third class air-conditioned	Third class mail	Third class Ordinary
1947-48 (1.1.1948)	-	30	-	16	-	9	7.5	-	6	4
1948-49 (1.1.1949)	56	24	-	9	7.5	-	-	-	5	4
1949-50 (1.12.1949)	50	24	14	9	7.5	-	-	-	5	4
1950-51 (1.8.1950)	50	24	-	14	-	9	7.5	-	6	4
1951-52 (1.4.1951)	50	27	-	16	-	10.5	9	-	6	5
1952-53	50	27	-	16	-	10.5	9	-	6	5
1953-54	50	27	-	16	-	10.5	9	-	6	5
1954-55	50	27	-	16	-	10.5	9	-	6	5
1955-56 (1.6.1955)	1 - 150 miles	54	18	-	18	9.5	-	-	10.25 (w.e.f 2.10.1956.)	6.25	5.25
	151-300	38	16	-	10.5	9	-	-	10	6	5
19	300 & above	32	15	-	9.5	9.5	-	-	9	5	4.5
1956-57	No change in fare										
1957-58 (15.9.1957)	No change in passenger fare was done but passengers fare tax was levied under the provision of the railway passengers fare tax Act,1957 which was credited to the Central Government. The rate of tax as below: 1. Seasonal tickets — No tax 2. Other tickets a) Upto 15 miles — No tax b) 16 - 30 miles — 5 per cent of the fare; c) 31 - 500 miles — 15 per cent of the fare d) 501 & above — 10 per cent of the fare 3. On mileage coupons — 12.5 per cent of the cost of coupons.										
1958-59 to 1960-61	No change in fare										

Source: Passengers Fare and Rates for combined Traffic on Indian Railways', published by the Ministry of Railways, in March 1961.

1. The rate of 3rd class air-conditioned is 3rd class Mail Fare plus 4 piss Air conditioned charges.
2. Figures in brackets show the date of implementation of the fare.

APPENDIX - 4

Table No. 5

CAPITAL-AT-CHARGE, REVENUE AND EXPENSES

(In crores of Rs.)

Year	Capital at charge	Gross earning	Working expenses	Net earning	Percent working expenses/ gross earning.	Per cent of Net earning/Capital at charge
1947-48	703.04	176.63	158.98	17.70	89.83	2.50
1948-49	736.79	225.65	177.95	47.70	78.86	6.47
1949-50	762.57	250.63	201.46	49.17	80.38	6.45
1950-51	786.63	257.14	208.27	48.87	80.99	6.22
1951-52	830.53	291.84	225.7	66.08	77.36	7.96
1952-53	853.06	270.09	218.16	51.93	80.77	6.23
1953-54	845.55	270.75	230.18	40.57	85.02	4.81
1954-55	872.98	286.89	254.50	52.39	81.74	6.00
1955-56	931.75	315.91	250.84	57.07	81.95	6.11
1956-57	1035.02	348.89	278.76	70.15	79.90	6.76
1957-58	1169.15	381.42	300.76	71.66	81.21	6.15
1958-59	1294.81	390.77	323.25	67.54	82.72	5.22
1959-60	1370.32	422.36	355.94	86.42	79.54	6.51
1960-61	1440.18	457.57	360.32	97.25	78.75	6.75

Source: Railway Board(Annual)Reports Vol.II,Statement No. 5

APPENDIX - 5

Table No. 4

GROSS REVENUE RECEIPT

(IN CRORES Rs.)

Year	Passenger earnings	Goods earnings	Miscellaneous Earnings					Gross earnings
			Other coaching	Other goods	Electric telegraph	Other miscellaneous	Total	
1947-48	69.54	85.56	17.68	2.81	0.09	5.74	25.58	176.68
1948-49	68.80	108.70	19.48	4.56	0.11	4.20	28.15	225.65
1949-50	91.18	132.09	18.36	5.75	0.11	5.16	27.36	250.63
1950-51	97.83	136.74	16.65	1.08	0.10	4.76	22.57	257.14
1951-52	109.89	152.97	19.88	4.05	0.09	4.98	28.98	291.84
1952-53	100.58	142.80	18.17	5.62	0.06	5.06	26.91	270.09
1953-54	101.35	144.35	18.81	1.03	0.05	5.16	25.05	270.75
1954-55	102.62	155.58	19.24	2.44	0.05	5.96	27.69	285.89
1955-56	107.71	171.16	20.87	9.56	0.04	6.77	37.04	315.91
1956-57	116.52	200.55	21.09	5.44	0.06	7.45	32.04	348.89
1957-58	119.10	225.07	24.23	4.60	0.05	8.37	37.25	381.42
1958-59	116.74	236.20	25.69	4.62	0.05	9.57	37.85	390.77
1959-60	127.02	255.31	25.41	5.78	0.05	10.79	40.03	422.56
1960-61	132.88	279.90	27.21	0.96	0.04	12.58	40.79	457.57

Source: Railway Board (Annual) Report Vol.II, Statement No. 6

APPENDIX - 6

Table No. 5

GOODS REVENUE(IN CROARS OF RS.)

Years	Agricultural products	Animal products	Mine products	Mineral oil products	Forest products.	Manufacture products	Miscellaneous products	Total
1947-48	17.48	0.63	14.19	2.56	2.07	16.07	25.66	83.56
1948-49	22.16	1.00	18.98	3.93	2.63	21.56	31.68	103.70
1949-50	26.61	1.95	25.25	6.05	4.23	27.57	31.70	152.09
1950-51	25.59	2.51	26.97	8.82	4.55	29.69	30.77	156.74
1951-52	23.95	2.28	26.92	10.40	4.23	31.78	35.91	152.97
1952-53	29.12	2.06	30.65	9.55	4.14	36.04	31.56	142.80
1953-54	28.18	2.12	31.49	10.62	4.05	38.81	32.75	144.55
1954-55	29.22	2.14	32.01	11.24	4.60	34.47	40.74	155.59
1955-56	32.66	2.69	32.77	12.79	4.91	37.67	46.57	171.16
1956-57	34.69	2.78	43.67	12.89	5.28	41.75	57.82	200.53
1957-58	40,68	3.02	49.47	15.85	7.90	55.50	52.11	225.07
1958-59	46.40	3.22	58.99	15.07	8.50	61.71	39.47	236.20
1959-60	45.92	3.43	64.92	17.56	8.85	66.05	48.58	255.51
1960-61	48.02	3.56	74.89	17.55	9.04	76.29	50.95	279.90

Source: Railway Board(Annual)Reports,Vol.II,Statement 23.

Note: Data presented in this table has been re-arranged according to changes made in classification of the commodities from time to time.

APPENDIX - 7

Table No. 6

GOODS TRAFFIC(IN LAKH TONS)

Year	Agricultural products	Animal products	Mine products	Mineral oil products	Forest products	Manufacture products	Miscellaneous products	Total
1947-48	168.66	2.16	514.09	11.89	54.85	105.26	125.03	984.02
1948-49	187.81	2.25	533.87	15.44	55.38	119.92	159.61	1058.01
1949-50	210.80	5.81	536.62	20.28	46.08	142.80	180.87	1193.69
1950-51	206.71	4.85	430.49	50.44	48.74	162.47	208.64	1281.65
1951-52	215.10	4.55	448.57	45.61	44.40	170.27	166.16	1306.01
1952-53	223.56	6.61	428.50	35.85	41.75	163.07	160.75	1070.19
1953-54	103.03	4.55	414.81	55.81	39.62	163.55	160.78	1027.99
1954-55	200.01	4.65	468.57	37.67	42.62	179.18	208.84	1158.89
1955-56	252.26	5.54	489.47	42.02	45.77	203.19	284.92	1238.95
1956-57	284.10	5.54	602.23	45.92	49.42	218.02	290.19	1443.95
1957-58	295.33	7.09	622.52	48.99	58.33	256.75	264.87	1566.78
1958-59	518.51	7.02	705.27	51.19	62.25	285.00	214.01	1853.99
1959-60	535.42	7.47	744.25	60.53	62.69	325.76	245.84	1779.94
1960-61	330.99	7.75	628.09	60.54	60.57	342.22	250.06	1889.22

Source: Railway Board Annual Reports, Vol.II, Statement 29.

Note: Data presented in this table has been re-arranged according to changes made in classification of the commodities from time to time.

A P P E N D I X - 8

Table No. 7

PASSENGER REVENUE(IN CRORES OF RS.)

Year	1 Air-conditioned.	2 First Class	Second Class	3 Third class air-conditioned	Third Class	Total
1947-48	-	2.38	10.03	-	57.13	69.54
1948-49	0.02	2.82	11.55	-	74.41	88.80
1949-50	0.09	3.89	9.69	-	77.72	91.19
1950-51	0.15	2.51	11.07	-	84.12	97.85
1951-52	0.19	2.23	11.22	-	96.25	109.89
1952-53	0.25	2.00	9.86	-	88.27	100.38
1953-54	0.47	1.70	9.96	-	88.22	101.35
1954-55	0.59	0.72	10.21	-	91.10	102.62
1955-56	0.80	5.86	6.11	-	94.86	107.71
1956-57	0.93	6.43	6.16	0.02	102.78	116.32
1957-58	0.99	6.60	5.80	0.21	105.50	119.10
1958-59	1.14	7.42	5.97	0.29	101.93	116.74
1959-60	1.17	8.08	5.90	0.50	111.59	127.02
1960-61	1.18	8.36	5.75	0.54	117.27	132.88

Source: Railway Board(Annual) Reports,Vol.II
Statement 12.

1. Air-conditioned class introduced from January 1,1949.
2. Second class includes receipts and traffic of Inter class. This has been done simply because Inter class first abolished on 1.1.1949 till 31.3.1950,i.e. for 15 months and secondly then this class completely abolished on 1.4.1955. Obviously, it is assumed that the passengers of Inter class have either shifted towards Second or Third class.
3. Third Class Air-conditioned introduced from 2.10.1956.

APPENDIX - 9

Table No. 8

PASSANGER TRAFFIC (IN LAKHS)

Year	1 Air-conditioned	First class	2 Second class	3 Third class air-conditioned.	Third class	Total
1947-48	-	24.27	518.45	-	9618.45	10161.15
1948-49	0.02	52.22	285.18	-	11086.25	11523.67
1949-50	0.11	159.58	255.99	-	11983.23	12398.91
1950-51	0.17	150.92	296.57	-	12785.90	13233.36
1951-52	0.25	144.57	279.32	-	12049.00	12473.14
1952-53	0.38	146.13	238.26	-	11662.90	12047.66
1953-54	0.70	154.59	242.00	-	12003.59	12380.98
1954-55	0.93	158.56	237.87	-	12376.03	12753.39
1955-56	1.24	202.42	178.88	-	12894.71	13277.25
1956-57	1.36	223.43	188.47	0.12	13653.16	14066.54
1957-58	1.44	248.72	147.99	1.05	14180.16	14579.36
1958-59	1.75	281.55	128.19	1.39	14428.68	14841.56
1959-60	1.85	352.47	126.11	1.35	15335.74	15797.52
1960-61	1.93	378.22	120.44	1.66	16160.53	16662.78

Source:Railway Board Annual Reports Vol.II,Statement 12.

1. A.C:Air conditioned class introduced from January 1,1949.
2. Second class includes receipts and traffic of Inter class. This has been done simply because Inter class first abolished on 1.1.1949 till 31.3.1950,i.e. for 15 months and secondly then this class completely abolished on 1.4.1955. Obviously, it is assumed that the passangers of Inter class have either shifted towards second or third class.
3. Third Class Air-Conditioned introduced from 2.10.1956.

APPENDIX - 10

Table No. 9

CAPITAL EXPENDITURES FROM GENERAL FUND

(IN CRORES Rs.)

Year	Capital expenditure on Railways					
	Work	Rolling Stocks.	G.Charges	Stores not finally accounted.	other intangible funds	Total
1947-48	4.31	1.93	0.48	2.61	-	9.53
1948-49	13.00	4.08	2.07	15.18	0.06	34.39
1949-50	15.72	3.03	1.49	15.11	-	34.25
1950-51	12.01	2.05	2.20	9.13	0.02	25.41
1951-52	8.77	7.00	1.56	5.91	0.03	23.21
1952-53	4.69	4.08	0.71	-2.44	-	7.04
1953-54	5.99	9.38	0.64	-4.16	-	11.85
1954-55	8.69	23.25	0.94	-0.61	-	32.26
1955-56	16.02	42.42	1.31	7.77	-	67.52
1956-57	20.39	69.09	2.27	16.47	-0.96	107.56
1957-58	42.15	64.97	2.94	40.65	+0.13	150.82
1958-59	52.63	50.68	5.61	18.91	-0.02	125.81
1959-60	53.44	35.59	4.94	-19.21	-0.03	74.68
1960-61	67.19	45.63	5.60	28.94	-0.09	89.49

Source: Railway Board Annual Report, Vol. II, Statement No.2(a)

A P P E N D I X - 11

Table No. 10

CAPITAL EXPENDITURE ACCORDING TO EXPANSION

(IN CRORES Rs.)

Year	Open lines	New construction.	Manufacturing & Misc.Items	Total
1947-48	9.05	0.28	-	9.33
1948-49	29.48	4.91	-	34.39
1949-50	30.43	3.82	-	34.25
1950-51	22.09	3.32	-	25.41
1951-52	21.29	1.87	0.05	23.21
1952-53	2.00	0.58	4.46	7.04
1953-54	9.38	0.81	1.66	11.85
1954-55	27.75	1.87	2.64	32.26
1955-56	56.11	6.23	5.18	67.52
1956-57	102.85	10.42	-5.91	107.36
1957-58	126.49	20.08	4.25	150.82
1958-59	106.06	11.27	8.49	125.82
1959-60	48.44	16.05	10.19	74.68
1960-61	48.63	23.05	17.81	89.49

Source:Railway Board (Annual)Reports Vol.II, Statement No.2(a)

A P P E N D I X - 12

Table No. 11

CAPITAL EXPENDITURE FROM RAILWAYS ON SOCIAL AND BORROWED

(In Crores of Rs.)

Year	Capital loan account	Depreciation Reserve Fund	Development Fund	Reserve Revenue Fund	Total
1947-52		data not available			
1952-53	4.56	23.66	4.74	4.10	42.06
1953-54	10.23	28.85	6.47	4.36	49.91
1954-55	32.23	7.61	12.04	4.70	56.63
1955-56	67.59	10.55	11.91	5.71	95.56
1956-57	107.56	8.40	18.16	7.46	142.40
1957-58	151.09	11.66	23.77	10.06	196.58
1958-59	125.82	14.85	21.51	10.21	172.57
1959-60	74.69	10.84	25.12	11.20	120.85
1960-61	89.49	11.46	22.85	11.55	135.15

Source: Railway Board Report(Annual) Vol.II,
Statement No.5.

A P P E N D I X - 15

Table No. 12

RAILWAY WORKING EXPENDITURE(IN CROREE OF RS.)

Year	General administration	Repair & maintenance	Operating expenses	Depreciation Reserve Fund	Total
1947-48	54.00	42.00	50.00	13.00	159.00
1948-49	56.00	48.00	62.00	12.00	178.00
1949-50	61.00	70.00	78.00	12.00	201.00
1951-51	45.00	60.00	60.00	50.00	215.00
1951-52*	46.00	65.00	67.00	50.00	226.00
1952-53*	44.00	61.00	63.00	50.00	218.00
1953-54	46.00	70.00	64.00	50.00	230.00
1954-55	49.00	72.00	65.00	50.00	236.00
1955-56	50.00	78.00	66.00	45.00	259.00
1956-57	54.00	86.00	94.00	45.00	279.00
1957-58	53.00	102.00	110.00	45.00	310.00
1958-59	57.00	104.00	118.00	45.00	324.00
1959-60	58.00	108.00	125.00	45.00	336.00
1960-61	60.00	111.00	157.00	45.00	359.00

Source: Railway Board (Annual) Reports, Vol.II
Statement 50(A)

*. By the change in accounting method the actual figures for these two years are not available except by percentage of total expenditure. Hence the actual figures for these two years are interpolated for different heads.

APPENDIX - 14

Table No. 15

PASSENGERS CARRIED BY CLASS

Year	Air-Conditioned class		First class		Second class		Third class		Total No.of Passengers carried in units	
	Broad gauge	Meter gauge	Broad gauge	Meter gauge	Broad gauge	Meter gauge	Broad gauge	Meter gauge	Broad gauge	Meter gauge
1947-48	-	-	5852	1103	20596	2484	845971	169303	9083	6321
1948-49	-	-	6070	1758	13570	5690	348485	165201	9386	6555
1949-50	-	-	7199	1019	15777	5078	558056	172575	9564	6305
1950-51	27	-	7121	002	10755	4193	569427	178030	9449	6870
1951-52	27	-	7265	070	17619	5049	593574	190202	9753	7750
1952-53	83	-	10140	549	22483	6480	530574	232100	10012	7930
1953-54	174	-	12018	456	28548	7803	597585	211309	10222	8165
1954-55	498	-	15586	852	28639	10640	410288	214755	10495	8348
1955-56	1184	52	05185	5057	14751	6478	411709	246552	10335	8740
1956-57	2181	234	23885	7022	14422	6317	422003	257630	10693	9158
1957-58	1098	306	23012	7912	14100	6317	452380	271706	11146	9256
1958-59	2532	312	21352	0750	18274	6530	440545	262354	11598	9910
1959-60	2582	022	21002	0903	12902	4270	467703	304396	12563	10287
1960-61	2590	522	20308	9420	12859	4170	517435	322000	12316	10333

Source: Railway Board(Annual) Report Vol.II, Statement No.

A P P E N D I X - 15

Table No. 14

RAILWAY ENGINE MILES

(figures in crores)

Year	Passanger traffic engine miles and proportion to mixed		Passanger traffic engine hours and proportion to mixed		Goods traffice engine miles and proportion to mixed.		Goods traffic engine hours and proportion to mixed		Total No. of goods vehicl for public use.(figures i units)	
	Broad guage	Meter guage	Broad guage	Meter guage	Broad guage	Meter guage	Broad guage	Meter guage	Broad guage	Meter guage
1947-48	5.51	2.85	0.41	0.24	6.56	2.29	0.91	0.33	75895	19502
1948-49	5.85	3.06	0.42	0.26	6.77	2.41	0.96	0.35	150482	41929
1949-50	6.10	3.24	0.43	0.27	7.46	2.53	1.04	0.36	149295	42457
1950-51	6.34	3.39	0.45	0.28	7.64	2.61	1.06	0.38	148675	42565
1951-52	6.59	3.82	0.46	0.32	8.03	2.96	1.12	0.43	150113	47771
1952-53	6.69	3.88	0.47	0.32	8.15	3.02	1.16	0.44	152916	52480
1953-54	6.88	4.04	0.49	0.33	8.18	2.99	1.19	0.44	155301	56865
1954-55	7.07	4.08	0.50	0.34	8.51	3.02	1.24	0.46	157092	59452
1955-56	7.16	4.20	0.52	0.35	9.01	3.29	1.33	0.51	161003	64073
1956-57	7.40	4.29	0.54	0.36	9.54	3.48	1.44	0.54	175554	75568
1957-58	7.57	4.40	0.55	0.37	10.01	3.82	1.54	0.59	191052	81511
1958-59	7.62	4.51	0.56	0.38	10.16	3.91	1.58	0.62	199929	84341
1959-60	7.70	4.58	0.56	0.39	10.67	4.06	1.60	0.65	203005	85343
1960-61	7.81	4.65	0.57	0.40	10.88	4.20	1.62	0.64	206929	82929

Source: Railway Board(Annual)Report,Vol.II, Statement No. 18,19, & 24.

APPENDIX - 16

Table No. 15

STAFF EMPLOYED IN OPEN LINES

(Rs.000)

Year	No. of staff			Salary including allowances		
	First & Second grade staff	Third grade staff	Fourth grade staff	First & Second grade staff	Third grade staff	Fourth grade staff
1947-48	1620	361368	467582	51072	599992	212050
1948-49	1752	370851	477651	52456	496001	266723
1949-50	1678	390934	45,152	51525	635615	354784
1950-51	2079	406816	442542	28738	664577	375127
1951-52	2268	469482	455569	29136	805369	395950
1952-53	2462	351455	590535	30835	659604	575259
1953-54	2554	342004	614865	31698	706675	614724
1954-55	2620	352408	625165	32587	745902	625881
1955-56	3018	374092	650052	33778	786058	665721
1956-57	3670	396759	653915	38594	849545	669450
1957-58	4013	428275	678758	45572	958839	726939
1958-59	4280	449508	690156	48282	1029845	755369
1959-60	4408	459855	690972	49912	1075035	767809
1960-61	4456	462989	693259	51855	1172211	824170

Source:Railway Board(Annual)Report Vol.II,Statement No.40-II

Note: As per Statements,III class staff includes IV grade semi skilled, artisan staff from 1947-48 till 1951-52.

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INDIAN RAILWAY FINANCE

(1947-48 to 1960-61)

Thesis Submitted for
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN ECONOMICS IN THE FACULTY OF ARTS.

By Jagdish Prasad Gupta
M. A.

DEPARTMENT OF ECONOMICS
ALIGARH MUSLIM UNIVERSITY
ALIGARH.
1968

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The present study relates to the growth of Indian Railway Finance since Independence till the end of the Second Five Yar Plan. It is based on the analytical discussion of financial statements. Such type of study is significant from two points of views, the economies of large scale production and the control of finances. However, the railway system is significant from both these point of view. Its operation is subject to the increasing return or diminishing costs, because half of the railway expenditure is fixed in nature while the second half increases not in direct proportion with the traffic. For example, if x costs to deal one lakh units of traffic than five lakhs units will not cost 5x, but 5x i.e. 1/2x +(1/2x x 5) = 3x. Simultaneously the Railway expenditure is subject to the economies of joint cost, because the same railway plant is used for diverse purposes, namely, for goods services, passanger services or mixed services; up and down journey and slow and fast movement of trains etc. Secondly, Railways are considered as public utility services. Because they are controlled and managed by the State under Article 246 of the Indian Constitution. Therefore, the railways are bound to carry all the traffic offered to them and not to maximise the profit. The observations so derived from the analysis are as:

Railway income is mainly acquired from two sources, namely, from goods and passenger services. Besides these railways too have some additional income from miscellaneous resources, for example, penalties on ticketless travell, demurrage and warfage, electric telegraph and school fees etc. This source of income accounts about three per cent of the total railway income, whereas the passenger service contributes 37 per cent and goods service 60 per cent.

The changing of rates and fare rests on the discretion of Railway Board. In railway economics, there are two theories advocated for determining the rates and fares, namely, cost of services and value of service. The experience shows that non of these theories have fulfiled the railway needs for railway's future expansion. Because after meeting the cost of operation railways require a fair share of revenue for purchasing the railway material for their future development. Therefore it is urged that rates shall be fixed on the basis of demand and supply or what is known as 'Value of service supplement to cost or what the traffic will bear'. Under this method there are separate characteristics for goods and passenger charges both from conveyor's and conveyance side. From conveyor's side these

characteristics are: weight, risk, packing, period of conveyance, regularity of traffic, type of wagon required and the character of the article etc., for goods traffic; whereas degree of comfort and the speed of passenger trains etc., for passenger traffic. However, from conveyance side these characteristics are: zonal system of rates, postal system of rates, equal milage rates or flate rate and the telescopic rates etc. In this way railway rates making is some what a tricky job and is based entirely on the experiments or the trial and error method.

The Indian Railway rates and fare structure, however, shows the dynamic character(Chapter II). In the early days of railway establishment these charges were governed by the five per cent guaranteed return on the capital investment by the foreign railway companies and thus each railway company was free to use its own rates. Later on, in 1887, the government had fixed a general upper and lower limits under which each railway company was free to use their own rates. Afterward when the railways were purchased by the State, the government had standardised these charges for all railways in 1924. But owing to the growing need of railway's capital investment, later on these standard charges were regularly revised in increasing behaviour. This results an increasing railway income both for goods and passenger services.

The analysis of the goods freight charges from 1947 till 1961, shows that the enhanced freight rates had effected the prices of the articles to a great extent. Because the transportation charges form a part of the cost of the article. For example, every farmer or manufacturer pays transportation charges on all the articles he conveys either to the factory or to the market and these added in the cost of that very article at every stage of conveyance. It means that 'higher the rates higher will be the cost or we can say the selling price of that very article and vice-versa'. The shifting of transportation charges can only be possible under the condition of inelastic demand and elastic supply. Because the consumer is helpless to curtail his demand and the transportation charges are merged into prices by the producer. However, under the conditions of elastic demand and inelastic supply the shifting of transportation charges are not possible, because the consumer will accordingly curtail his demand or he will consume the low priced p articles of substitutes. In this way a new equilibrium will again formed to determine the prices. To judge the argument under present state of economic development it is seen that the general price level is continuously increasing from 1947. Thus it is

concluded that higher freight charges had their effect over the prices. Though, the ri e in prices may be by some other reasons, namely, high cost of raw matetial, labour and the other capital goods, but at every stage transportation charges are paid. Secondly it is also find that freight charges have effected the hauls of different articles which is declining when the same has been estimated on the basis of the freight income and traffic (Table 2:6)

As regards the passanger fares, the analysis shows that the incidence of rising fares is always more on the third class than the upper class passangers(table 2:8), whereas the third class passangers are either low income group persons or extremely poor class persons. Hence the third class passangers have sacrificed more than the other class passangers for railway development. It is due to the fact that the marginal utility of money is more to poor than the rich. On the other hand, it is further found that due to the higher fares effect the passanger lead too, is declining or over all it is lowest to 29.2 miles(Table 2:9).

In views of these findings in rate and fare charges, the analysis of the growth of railway income shows an increasing behaviour both in the passanger and goods services, whereas the traffic in both has continuously increased to a greater extent. Therefore, it is concluded that, 'the railway income has continuously increased due to increased traffic and rates and fares'. But these charges acted as tarrif wall for the movement of traffic for longer hauls or leads in each case'. Therefore, the income per unit in each case is less than the charges per mile(Chapter III)

Railway expenditure is divided into two parts, namely, capital and working expenditure. Although railway operation is subject to the economies of large scale production and simultaneously to joint cost. The analysis shows that both types of expenditure(capital and working) are continuously increasing. The increase in capital expenditure is for meeting out the railways long standing demand for renewal and replacement of rolling stocks, railway expansion programme under Five Year Plans etc. Therefore, the increasing capital expenditure, as found was mostly met out from the railway's own income and from the central funds, while the deficiency was covered from the outside borrowing. Thus overall the railway capital-at-charge has increased by 68.5 per cent in 1960-61 over 1947-48. On the other hand, railway working expenditure too

had increased into four major heads for example, general administration, repair and maintenance, operating expenses and depreciation reserve fund. However, the analysis shows that operating expenses and the expenses on repiar and maintenance both have increased very closely at faster rate due to high cost of railway material and store, fuel and staff etc. The expenses on general administration increases at a very low rate due to rationalised income distribution policy(Chapter VII). The changes in the depreciation reserve fund have also been rapid due to the frequent changes done by the Railway Separation Convention Resolutions of 1949,1954 and 1959 respectively. In this way over all the railway expenditure had continuously increased and is not under the economics of large scale production and simultaneously to the joint cost(Chapter IV).

Similar to the increasing tendency of railway income and expenditure, net earning too, has continuously increased. The analysis of railway working expenses over railway income, i.e., the operating ratio or Railway efficiency; and the railway net earning over railway capital investment, i.e., rate of return over capital investment in Railways; shows that the operating ratio is high. Because the percentage per-se of the railway working expenses over railway income is higher from the normal which is

supposed to be 70 per cent in railway economics. It is due to high cost of railway material and store, fuel and staff, extensive use of rolling stock and staff's inefficiency. The further analysis of operating ratio on individual railway services, namely, passenger and goods, it is found that goods service is more paying than the passenger services. Because under the rapid development in agriculture, industries and international trade under the two Five Year Plans. As regards passenger services it seems that there occured more revenue leakage in form of ticketless travell, huge wastage on passenger amenities(mostly provided without their proper use), concessional tickets and also due to short passenger leads etc. (Chapter V). However, the income distribution to staff of all grades shows a picture of socialistic pattern, i.e., the income per capita and well as the real income of first and second grade officials had declined, whereas the income for third and fourth grade has increased(Chapter VII).

Lastly on regards the superficial view of rail-road competition, it is found that under the present state of economic development both means, namely, rail and road, are continuously developing into their own sphere, and non is effecting the revenue of the other. Because under the planned economic development passengers and goods traffic both had increased to a great extent and it is beyond the capacity of both the means of transportation if put together to carry it.